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Computer-based tools and techniques for script breakdown and scheduling

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**COMPUTER-BASED TOOLS AND TECHNIQUES
FOR SCRIPT BREAKDOWN AND SCHEDULING**

A Thesis

Presented to

The Faculty of the Department of TV, Radio, Film, and Theatre

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

John William (Jack) Igoe

May 2002

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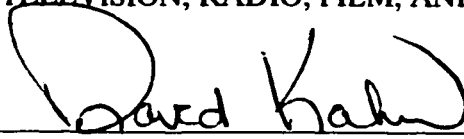
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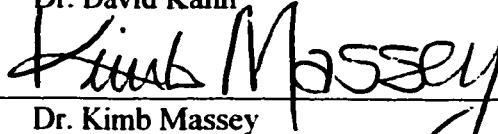
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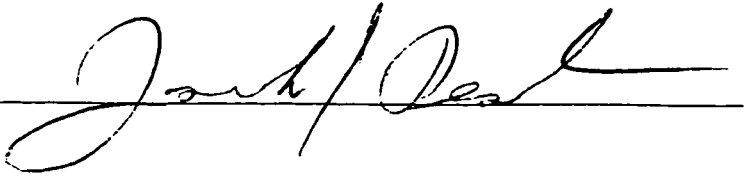


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ABSTRACT

COMPUTER-BASED TOOLS AND TECHNIQUES FOR SCRIPT BREAKDOWN AND SCHEDULING

by John William (Jack) Igoe

This thesis addresses the question, “What computer-based tools and techniques are available to the independent filmmaker, and how are they used to break down a screenplay and schedule a motion picture production?” Available tools are identified, as are customized techniques for their use. Experience from applying selected tools to two feature-length films is described. A methodology is provided for preparing spreadsheet workbooks for preproduction planning to be used by students and other emerging filmmakers who do not have extensive computer sophistication or production management experience. Examples, sample spreadsheets, and sample reports are examined in detail in the main text; full-page copies of key forms are provided in the appendix. Filmmakers should be able to use this thesis as a guide to break down a script and schedule a production using established methods with the application of the latest technology.

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1. SCRIPT BREAKDOWN AND SCHEDULING

1.1. INTRODUCTION

Few fields of endeavor exemplify the expression “time is money” more than motion picture production. Unlike the historic studio system that used primarily salaried employees to produce films, today’s production companies typically use independent contractors with specific commitments for time and money. Any slippage in the schedule results in tangible overruns to the budget, jeopardizing not only profitability, but, if severe enough, the completion of the film itself. Major motion picture budgets can run into hundreds of thousands of dollars per day.

Film¹ production is generally described as comprising three phases: preproduction, production, and postproduction. Preproduction is the primary planning and preparation phase. Images and sound are captured during the production phase and then edited together and effects added during the postproduction phase.

The preproduction phase is often referred to simply as *prep*. Effective prep increases the likelihood of a successful production. “The show is made in prep” (Obst, 200). “If a movie falls behind in prep, it will stay behind and is likely never to recover” (204).

¹ The terms *film*, *movie*, and *motion picture* are used interchangeably. No distinction is made regarding the medium on which the production is recorded, be it traditional film or videotape, or whether its distribution is theatrical or broadcast.

It takes considerably longer to plan and assemble a film than it does to capture the images. “Rule of thumb: For every period of shooting there should be two times for pre-production and three times for post-production” (Gates, 68).

The use of computers in motion picture postproduction is well known to filmmakers and audiences alike. The use of computer-based² tools for production planning is much less well known. Little has been published about them and no texts are available describing their use. “There aren’t any books that address using these tools” (Koster,³ Telephone).

The first such tools appeared in the early 1980’s following the rapid proliferation of the IBM Personal Computer. Chris Huntley and Stephen Greenfield formed Screenplay Systems in March, 1982, to develop the first PC-based script formatting program, *Scriptor*. Released in February 1983, it netted the authors a 1994 Technical Achievement award from the Academy of Motion Picture Arts and Sciences. After *Scriptor*, they introduced *Movie Magic Budgeting* in 1985, followed a year later by *Movie Magic Scheduling*. They added an automated creative aid, *Dramatica*, in 1994.

² *Computer-based* denotes software programs designed to run on Windows-based personal computers or Apple Macintosh, with both being referred to as *PC*. No distinction or preference is made unless explicitly stated.

³ Bob Koster is a 35-year veteran AD and UPM. He is Adjunct Professor at the University of Southern California (USC) where he teaches the Master Class in production planning, budgeting, scheduling, production management, and computer use in entertainment. He teaches similar courses at UCLA-Extension and in seminars for the DGA. He has been a consultant to Creative Planet on enhancements to the Movie Magic products.

The *Movie Magic Scheduling* and *Budgeting* programs were preceded in the marketplace by *Film Tracks*, written by novelist, screenwriter, and director Michael Chrichton, for which he received a technical Academy Award (Koster, Telephone). Of *Film Tracks* and the other early preproduction planning programs, only the *Movie Magic* products survived.

Two key activities during preproduction are script⁴ breakdown and scheduling. *Script breakdown* is the process in which a script is analyzed to identify all of the *production elements* (actors, extras, props, set dressings, etc.) necessary to turn the script into a finished production. *Scheduling* is the process in which the shooting sequence is determined and the day-by-day requirements are determined for the elements identified in the breakdown. *Locking the script* is the process of placing the script under formal revision control and marks the point where detailed script breakdown and scheduling may begin.

The responsibility for script breakdown usually lies with the first assistant director or the unit production manager. These positions are formally defined by the Directors Guild of America (DGA). Silver and Ward quote the DGA employment contract⁵ in defining these job functions and enumerating their responsibilities.

The *unit production manager* (UPM or PM), “under the supervision of the Employer, is required to coordinate, facilitate and oversee the preparation of the

⁴ The terms *script* and *screenplay* are used interchangeably, although when referring to breakdown, the term *script* is invariably used.

⁵ called the *DGA Basic Agreement*.

production unit or units (to the extent herein provided) assigned to him [sic], all off-set logistics, day to day production decisions, locations, budget, schedules and personnel” (Silver, 9).

The *first assistant director* (AD), “alone or in conjunction with the UPM organizes pre-production, including organizing the crew, securing equipment, breaking down the script, preparing the strip board and a shooting schedule. During production, he or she assists the director with respect to on-set production details, coordinates and supervises crew and cast activities and facilitates an organized flow of production activity. The first assistant director may be assigned responsibilities of the UPM. His [sic] other prime responsibility is to service and assist the director” (Silver, 10).

The division of responsibilities between the AD and the UPM varies from production to production. Usually, the UPM is responsible for the schedule and budget and the AD is responsible to ensure the director gets the necessary shots within that schedule and budget. The production manager must balance the creative requirements of the director with the financial requirements of the producer. “The PM epitomizes the eternal conflict between art and commerce ...” (Cleve, 3).

The *second assistant director* (2nd AD) “is the one who is assigned by the employer as an assistant to the first assistant director in conducting the business of the set or the location site” (Silver, 11).

The *breakdown sheet* is the form on which all production elements (actors, extras, props, set dressings, vehicles, etc.) of a “shooting unit”⁶ are listed. “The script breakdown sheet is the single most important production form during this phase because all future reference and production work will be based on it. Anything missing in the breakdown sheet is likely to be missed during the shoot on the set, and thus will be missed on the screen” (Cleve, 22).

Traditionally, the *shooting schedule* is displayed and reviewed on a series of vertical strips of paper, mounted on a folding board, with each strip representing a single breakdown sheet. This is called the *production board* or sometimes the *strip board*.

The *call sheet* is a form that shows in detail the daily shooting plan with detailed cast, crew, and equipment requirements. The 2nd AD is specifically charged with preparing the call sheets. To use a manufacturing analogy, the production board is the master build plan and the call sheet is the daily production schedule.

Manual techniques for script breakdown and scheduling have existed for decades and are now well documented. Singleton, Cleve, and Silver describe the breakdown process using examples from sample scripts. Singleton’s *Film Scheduling* breaks down and schedules an entire script and will be quoted liberally. Gates, Cleve, and Silver describe script breakdown within the context of broader issues of film production management. Miller presents the process from a *continuity* point of view, describing

⁶ At the most basic level, this is a scene from the script, but strictly it is a unit of action that takes place in the same location over the same period of time. This concept is explored in more detail in the chapter on script breakdown.

methods to ensure consistent condition and positioning of props, set dressings, and actors from shot to shot.

Honthaner summarizes the process and provides a CD-ROM with *MS-Word* templates for computerized versions of dozens of paper forms. Unlike Singleton, she does not attempt to train the reader how to break down and schedule. “If you are not already breaking down scripts, doing boards and schedules, or if you haven’t yet prepared a one-line schedule, it’s doubtful that reading this chapter would qualify you to do so” (55).

While texts and training on traditional breakdown and scheduling processes are readily available, the same is not true for computer-based techniques. “Our trainees receive a class in scheduling ‘the old fashioned way’ with breakdown pages and a manual strip board. Sort of like learning math before using a calculator” (Slosser,⁷ Email). “Film schools, even those teaching the most updated scheduling software programs, are teaching students how to manually break down and schedule scripts” (Honthaner, 57).

Properly applied by a knowledgeable user, computer-based tools can augment the script breakdown and scheduling processes to better manage the plethora of data associated with film production, minimize errors and omissions in such data, cope with the evolutionary nature of production planning, manage the changes that occur during production, and facilitate communication of the latest information to all who require it.

⁷ John Slosser is the administrator of the DGA Assistant Director Trainee Program and a 25-year veteran AD and UPM.

This opinion is not universally held, however. “It’s too easy to slip up using the computer” (Panelli-Venetis⁸). Most AD’s and UPM’s still manually break down their scripts. Panelli-Venetis feels that manual breakdown allows her to get to know the script better, a sentiment echoed by Koster. Whatever technique is used, the objective is a thorough understanding of the script and its associated production requirements. “The most effective production manager must know his project better than anyone else on the show – including the director” (Singleton, Scheduling 196).

The objectives of using computer-based tools are to identify production elements and potential issues at the earliest possible time, capture and store the data as it is generated, and minimize the probability of missing something in transfers of information from one system to another.

This is particularly important for the independent filmmaker. The more masterful a filmmaker becomes with these tools, the more effective the preproduction planning activities can be without increasing the budget. “Rarely does an independent producer have enough money beforehand to hire a production manager to break down the script and prepare a board and budget” (Singleton, 5).

1.2. APPLICATION

The tools and techniques described in this thesis were first used on the production of *Ball Lightning*, a short drama filmed in the spring of 2001. The tool set was subsequently updated and used to breakdown, schedule, and manage *Pizza Wars* The

⁸ Michelle Panelli-Venetis was AD for the films *High Crimes*, *Bounce*, *Bowfinger*, *City of Angels*, *Volcano*, and *Indian in the Cupboard*.

Movie, a feature-length comedy, and to breakdown and schedule *Intentions*, a feature-length drama.

Selection criteria for tools included functionality, availability, and cost. The tools from which the set was selected are described in Chapter 2, including selection rationale.

The initial tool set included the following:

- *Movie Magic Screenwriter 2000*, version 4.0 (*Screenwriter*)
- *Movie Magic Scheduling*, version 3.5 (*Scheduling*)
- *Microsoft Office: Excel 2000, Word 2000, PowerPoint 2000* (*Excel, Word, PowerPoint*)
- *Microsoft Front Page 2000* (*Front Page*)

The techniques described are based on this particular tool set. If other tools are chosen, implementation would change but the issues that need to be addressed remain the same. Examples and instructions are based on Windows versions of the software, but Macintosh versions could be used just as easily.

In order to distribute reports electronically during *Pizza Wars* preproduction, the tool set was expanded to include *Adobe Acrobat*, version 5.0 (*Acrobat*) for creating Portable Document Format (PDF) files. This is a cross-platform, application-independent format developed by Adobe. A free reader program for these files is available for downloading from their web site. *Screenwriter, Scheduling, Excel, and Acrobat* form the core of the tool set.

While *Ball Lightning and Pizza Wars* were personally managed throughout production, for *Intentions* the tools and techniques were provided to the AD and UPM, along with instruction on how to use them. Training seminars, planning worksheets, and

evaluation reports were provided during preproduction. During this process, the techniques used for preproduction planning were refined and an initial set of production planning spreadsheets developed. These evolved into a system to produce customized workbooks of production planning spreadsheets to assist students and other emerging filmmakers who do not have the production management experience, computer sophistication, or financial resources to use a professional tool set.

Pizza Wars was scheduled for 30 shooting days over a 35-day period, using 30 actors (including one dog) to play 35 named characters, with up to 24 extras on 34 sets in 24 different locations. This proved to be a sufficiently complex production to test and evaluate the tools and techniques. *Intentions*, while somewhat less complex, still had its own challenges, primarily due to conflicts in actor and location availability. *Intentions* was scheduled for 21 shooting days over a 30-day period using 12 actors plus extras on 24 sets in 17 locations, still an ambitious production to manage.

2. COMPUTER-BASED TOOLS

2.1. SOURCES

Singleton's *Film Scheduling*⁹ includes advice and a list of computer programs available in 1991 "compiled by Walt Gilmore, Chairman of the Computer Committee of the Directors Guild of America" (198). Only a few of those programs survive a decade later, and the committee no longer exists. "The committee existed only in the late eighties, early nineties. It morphed into the BBS¹⁰ committee, but only for a short time. Now there's a New Technology committee, but they're focusing on digital technologies for things like acquisition and distribution" (Koster, Telephone).

The primary source of software tools for people outside of the Los Angeles basin is the Internet. Software is generally available through specialty online stores or from the software vendors directly. In Los Angeles, due to the local plethora of filmmaking activity, there are physical stores at which the software is available.

Table 1 lists the online stores identified in October 2000 that are still operating. Internet searches for the terms "screenwriting software" or "film scheduling software" yield many more. Anyone considering acquisition should check both the online stores and the vendors' web sites since pricing varies considerably.

⁹ The only text located that lists, and describes in some detail, film production management software packages and their sources.

¹⁰ Bulletin Board System.

Table 1. Online Software Stores.

Store Name	Store Web Site
Enterprise For Hollywood	http://www.enterpriseprinters.com
Filmmaker Store	http://www.filmmakerstore.com
Scriptdude Co.	http://www.scriptdude.com
Master Freelancer	http://www.masterfreelancer.com
The Writers Store	http://www.writersstore.com
Write Brain	http://www.write-brain.com

The Internet is also a wealth of other resources for people doing preproduction planning. Table 2 presents a sampling. The nature of these sites is described following the table. They range from online versions of well-established directories, like LA 411, to web-rings of self-posted sites.

Table 2. Film Production Resources on the Web.

Site Name	Site Address
Assistant Directors	http://www.assistantdirectors.com
CineMedia	http://www.cinemedia.org
Dependent Films	http://www.dependentfilms.net
Directors Guild of America (DGA)	http://www.dga.org
DV Handbook	http://www.dvhandbook.com
Filmmaker	http://www.filmmaker.com
Filmmakerssoftware	http://www.filmmakerssoftware.com
LA 411	http://www.la411.com
Producer's Masterguide	http://www.producers.masterguide.com
Producers Guild of America	http://www.producersguildonline.com
Reel Directory	http://www.reeldirectory.com
Writers Guild of America (WGA)	http://www.wga.org

DGA, WGA, and Producers Guild are the online sites for the professional guilds in these disciplines.

Assistant Directors is a news and links portal with a section for crew to publish a listing of their skills. Cinemedia claims to be “the internet’s largest film and media directory” with “links to over 25,000 sites.” Dependent Films is a small, independent production company that offers film production forms online, downloadable in both Adobe PDF and Excel spreadsheet formats.

DV Handbook is an online version of a published book, with a variety of essays on preproduction, production, and postproduction, as well as links to many of the online stores identified in Table 1. Filmmaker offers news; links; simple, free, Excel spreadsheets to download for many production-related forms; and offers a self-posting area to advertise goods and services. This is an independent site, not related to *Filmmaker Magazine*. Filmmakersoftware offers a free, downloadable, “full-featured budgeting & scheduling software solution for the independent filmmaker.” This software was not evaluated since downloading executable programs from little-known sources is high risk due to possible computer viruses.

LA 411 is a long-established resource book for film production goods and services in southern California. It is now available online. Reel Directory is the northern California counterpart. Producers Masterguide claims to be “The Most Comprehensive Film Production, Film Pre-Production, and Film Post Production Information Source.” The web site advertises the print version of the book. It is not searchable online.

2.2. SCRIPT FORMATTING

The script is the blueprint for the production. To be effectively taken into production, it must be properly formatted. “The purpose of a properly formatted script is to accurately indicate the program’s running time and allow production requirements – talent, locations, props, etc. – to be identified quickly. Each script element – scene headings, action, dialogue, parentheticals, character names and transitions – has separate formatting requirements” (Goodman).

Script formatting tools fall into two general categories: word processors, usually with add-ons or macros specifically for script formatting, and stand-alone formatting programs. Goodman addresses why a “serious writer”¹¹ would purchase a formatting program rather than use a word processor, even with macros:

With a few simple macros that you can create yourself, most word processing programs will handle the routine formatting chores. The challenge is pagination. There are rules for breaking scenes across two pages. A different set of rules applies if you break a character's dialogue across two pages. It gets more complex when the script goes into production. All the scenes must be numbered and the script "locked," so everyone has the identical version. If there are revisions, a third set of rules determines how these script changes are handled. The value of a specialized program becomes self-evident.

Goodman’s article is a software review of script formatting programs, but clearly considers more than just proper presentation of the script. His statement about the purpose of proper formatting introduces the concept of “production requirements” as one of the prime reasons for such formatting.

¹¹ Goodman’s term.

When considered from a production management point of view, there is no room for debate about formatting programs versus word processors. Only stand-alone script formatting programs should be considered since word-processor tools offer no support for production.

Table 3. Script Formatting Programs

Product	Price ¹²	DOS	Win	Mac	Company Web Site
Final Draft	\$199.95	N	Y	Y	http://www.finaldraft.com
Hollywood Screenwriter	\$59.95	N	Y	N	http://www.screenplay.com
Hollywood Screenplay	\$110.00	N	Y	N	http://www.hollywoodscreenplay.com
MM Screenwriter 2000	\$229.95	N	Y	Y	http://www.screenplay.com
Page 2 Stage	\$79.95	N	Y	N	http://www.page2stage.com
Scriptware	\$199.95	N	Y	Y	http://www.scriptware.com

The variation in price roughly corresponds to variation in the level of sophistication of the software. For example, *Hollywood Screenwriter* offers only a subset of the functionality of *Movie Magic Screenwriter 2000*, and both are from Screenplay Systems.

Goodman identifies the three main competitors as *Final Draft*, *Movie Magic Screenwriter 2000*, and *Scriptware*. No evidence could be found to support Cinnovation's claim that *Scriptware* is the "best-selling scriptwriting word processor in Hollywood (and the rest of the world) ..." ("Best Scriptwriting Software"). Considerable

¹² Representative pricing, either from The Writers Store or the developer's site.

web surfing of filmmaking sites leads one to believe that *Final Draft* is the market leader, although no definitive market share data was located.

In the year since the original software survey, no new entries were discovered, but competition and investment is increasing. The November/December 2001 issue of scr(i)pt magazine contained full-page color ads from Screenplay Systems (inside front cover) and Final Draft (back cover), as well as for two online software stores, The Writers Store and Write-Brain. Word-processor add-ons are still trying to compete, evidenced by an ad for *ScriptWerx* in the classified section (67). The corresponding issue from the preceding year had no full-page ads for software tools or stores.

Final Draft was initially selected for script formatting based on the following criteria: 1) it was one of the leading script formatting programs, and 2) it was available in the student book store, which was incorrectly assumed to imply University endorsement. The initial impression from the demo version of *Screenwriter* was that the conversion to Windows from its DOS-based predecessor might not be fully evolved. This later proved not to be the case.

During the preproduction work on *Ball Lightning*, the demo version of *Screenwriter* was further explored, uncovering the details of the Production menu, with considerably more capability than *Final Draft*. Both programs can export to *Scheduling*, but only *Screenwriter* has the production facilities described later. With Screenplay Systems then offering a “competitive upgrade,” the selection for script formatting was changed to *Screenwriter* in order to incorporate the production facilities into the tool set.

There are an astonishing number of production capabilities in this program. It's possible to link a script to storyboards created in Power Production's Storyboard Quick or Artist program (Windows version only). Screenwriter 2000 can print the current page or in any of the ways available in any of the other programs. You can preview or print character lists, dialogue, unique locations, actor's sides, film breakdown reports and television breakdown reports. You can do primary and secondary sorts. Screenwriter 2000 normalizes the time of day for Scene Headings that contain "later," "continuous" or "same time" by matching them with the previous scene's time of day. Headings such as "that night" are automatically placed in the "night" category and "afternoons" in the "day" category. There isn't enough space to cover all of the production breakdown, reporting and printing features. Any information production would need can be easily tagged for a report or export to Movie Magic Scheduling. Screenwriter 2000 has a thorough reference manual that explains these features. (Goodman)

Both *Screenwriter* and *Scheduling* were originally developed by Screenplay Systems although *Scheduling* and its companion *Budgeting* program have been sold to Creative Planet. The integration of these tools is still in place and is fundamental to the techniques described in this thesis. *Screenwriter* offers some specific facilities to aid script breakdown.

Traditional discussions of script breakdown talk about working through a printed copy of the script and highlighting production elements in different colors. "One starts the breakdown process with a few good pencils, a transparent ruler and at least one highlighter" (Honhaner, 57). "A helpful hint: use different colored pencils to underscore different elements in the script: Green for characters in or entering a shot; Blue for props; Red for characters or props exiting a shot; Purple for overt action; etc." (Miller, 19).

Opinions about the importance of color-coding when marking the script vary.

“And don’t believe what you read about color-coding. I just use one color and underline things” (Koster, Telephone). After identifying the production elements in the script, they are entered into breakdown sheets or a program like *Scheduling*.

Screenwriter provides a unique, automated alternative, called Tagging Mode.

Tagging Mode is the electronic equivalent of underlining elements in the script, allowing the AD/UPM to “tag” elements in the script as props, set dressings, etc. These tags cause the elements to be exported appropriately into *Scheduling* and also cause them to appear in the *Screenwriter* breakdown sheets, another unique feature. This allows the breakdown process to begin electronically in the script and not be lost if the script changes. Individual elements may be tagged for a single occurrence in a single scene or may be tagged “globally,” in a single step, for all scenes in which they occur.

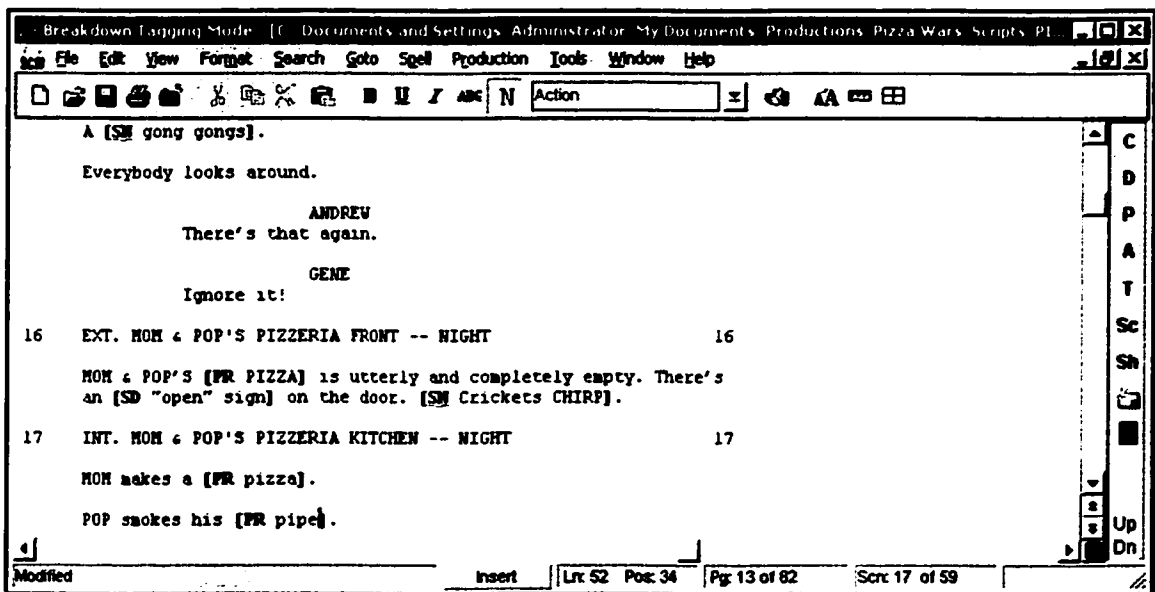


Figure 1. Tagging Mode.

In this example, there are tags for a sound (gong gongs), a prop (pizza), another sound (crickets chirp), a set dressing (“open” sign), and another prop (pipe). Tagging mode can be toggled on and off as required via the “Production” menu.

Screenwriter allows creation of elements not explicitly mentioned in the script. This allows the preproduction script to become the repository of early production design information. *Screenwriter* allows association of elements with character and location (set) names. For example, “set dressing” elements can be associated with set names causing all the associated elements to appear in every breakdown sheet in which that set is used. This allows the set dressing element to be entered a single time yet appear in all sheets using that set. It saves a significant amount of data entry during breakdown and removes a major source of error: the probability of missing a key element for a scene.

2.3. SCHEDULING

Tools for production management fall into the subcategories of scheduling and budgeting. Film budgeting tools and techniques are well covered in Koster’s book on the topic and need not be addressed here. The Cinergy Suite is included since it is the first identified effort to produce a completely integrated production management suite.

Table 4. Production Management Software.

Product	Price ¹³	DOS	Win	Mac	Company Web Site
Cinergy 2000 Budgeting	\$399.00	N	Y	N	http://www.mindstarprods.com
Cinergy 2000 Scheduling	\$499.00	N	Y	N	http://www.mindstarprods.com
Cinergy 2000 On Set	\$799.00	N	Y	N	http://www.minstarprods.com
Cinergy 2000 Post Prod.	\$2,499.00	N	Y	N	http://www.mindstarprods.com
Cinergy 2000 Suite (All)	\$3,499.00	N	Y	N	http://www.mindstarprods.com
EasyBudget	\$189.95	N	Y	Y	http://www.easy-budget.com
Movie Magic Budgeting	\$649.00	N	Y	Y	http://www.creativeplanet.com
Movie Magic Scheduling	\$649.00	N	Y	Y	http://www.creativeplanet.com
Turbo A. D.	\$395.00	Y	N	N	http://quantumfilms.net
Turbo Budget	\$199.00	N	Y	N	http://quantumfilms.net

Movie Magic Scheduling was the only tool considered for selection in this category. Not only was it the industry leader, the new owner, Creative Planet, was experimenting at the time with an annual “subscription” license for only \$99 rather than the perpetual license fee that was subsequently reinstated.

Screenplay Systems started the capability of an integrated set of software tools, with *Movie Magic Screenwriter*, *Scheduling*, and *Budgeting*. Whether Cinergy can penetrate the market remains to be seen. *Scheduling* established its foothold early. Singleton noted in 1991 that “*Movie Magic Scheduling* is the film and TV industry’s #1 script breakdown and scheduling program” (204), dominance that continues to this day. “We do not get into competing scheduling programs; there are still a couple, but *Movie*

¹³ From the vendors’ sites.

Magic¹⁴ dominates the market” (Slosser, Email). “Cinergy is a pale imitation of what Creative Planet has” (Koster, Telephone).

2.4. DOCUMENTS, SPREADSHEETS, AND MAPS

The Microsoft Office 2000 suite, already in hand, was deemed more than adequate for handling documents, spreadsheets, and maps: *Excel* for spreadsheets, *Word* for documents and correspondence, and *PowerPoint* for maps to shooting locations. Files created and maintained with these programs were primarily used for communication of information rather than the script breakdown and scheduling process itself.

Clear communication is important for every aspect of the shoot. This is particularly true for people who are involved only infrequently and not constantly in touch with the production. Note that the map sample in Figure 2 shows where to park, the one-way streets, how to get from the parking lot to the shooting location, where to report at the location, where the shoot will take place, and, most importantly, where the restrooms are located.

¹⁴ Referring to *Movie Magic Scheduling*.

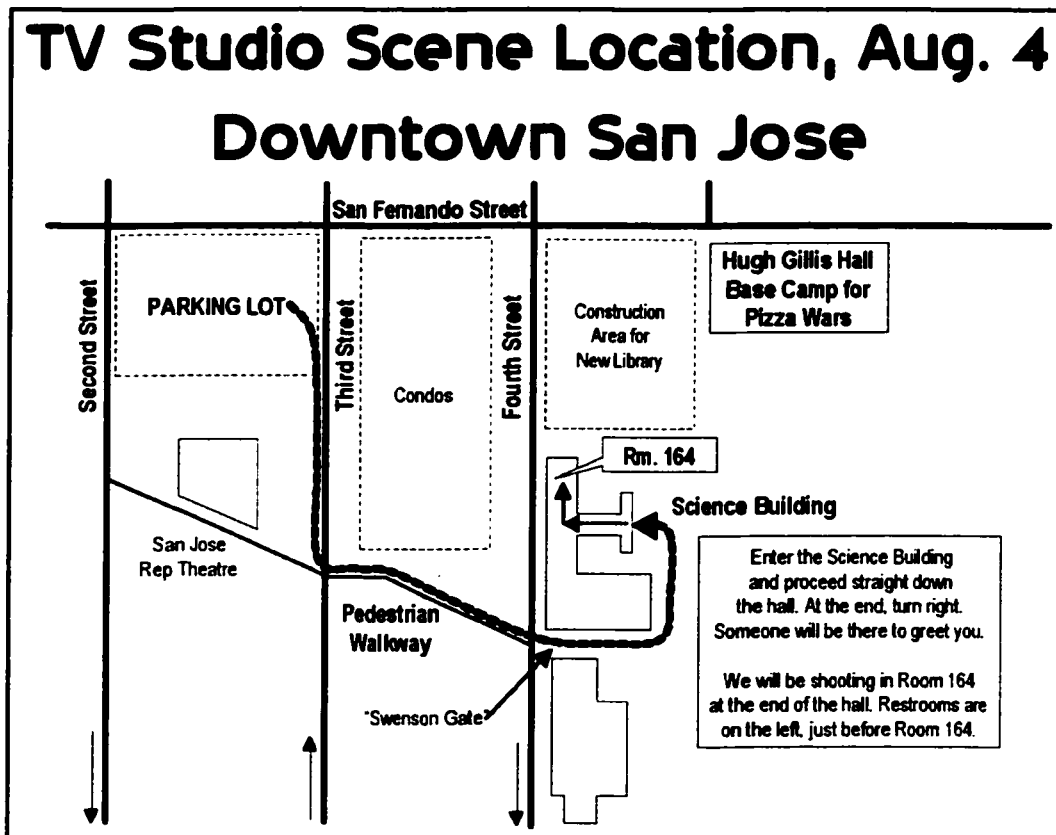


Figure 2. Location Map.

2.5. WEB-BASED TOOLS

New web-based services are evolving for filmmakers to create a “virtual production office.” Two companies appear to be leading the way.

Table 5. Web-based Virtual Production Office Tools.

Company Offering	Company Web Site
Filmport VPO	http://www.filmport.com
Movie Magic Web	http://www.creativeplanet.com

Neither of the companies posted pricing on its web site. This is understandable for service products where configurations may differ widely between customers. No substantive research was conducted in this area since no funds were available in any of the production budgets for such services, however desirable.

Frances Ford Coppola has established the *Zoetrope Virtual Studio* as a collaborative site for filmmakers. It promises to offer in the future a set of production management tools.

A web site was established using *FrontPage* for the *Pizza Wars* production team, primarily to post notices, scheduling information, and serve as a repository for report distribution. It received little use and its maintenance was discontinued midway into production. email, paper, and especially cell phones remained the primary communication mechanisms.

2.6. PUBLISHING/DISTRIBUTION

One of the particularly useful capabilities of *Screenwriter* is its ability to write scripts, or selected portions thereof, to PDF files. This allows, for example, actors out of town to receive by email before their auditions, a printable copy of the scenes containing only their characters.

After entering the preproduction phase of *Pizza Wars*, the lack of a similar capability in *Movie Magic Scheduling* became a severe inconvenience. *Adobe Acrobat* was acquired and added to the tool set so that PDF files could be created for printed output from any application.

3. PREPRODUCTION PLANNING

3.1. PROCESS OVERVIEW

“The script is the chart of navigation of the project. Without it the production cannot move forward” (Sarrafan, Sting 15). Breakdown begins with reading the script. “Do not attempt to break down a script without first reading it through at least once” (Singleton, 9). “On your next reading of the script, you are going to go through scene by scene and mark every bit of information relative to a single scene on the appropriate breakdown sheet” (18).

Breakdown actually occurs in two phases, first identifying *production elements* and then analyzing *shooting requirements*. Production elements are first identified in the script reading and marking. The list is then augmented with elements defined by the production designers. The breakdown sheet is the repository for this information.

For the simplest scene, there is a single breakdown sheet. In other cases, there are multiple breakdown sheets per scene or a single breakdown sheet covering multiple scenes. These “shooting requirements” must be identified before production can be scheduled. A breakdown sheet must exist for each set of shots to be accomplished at the same time and location.

For example, a scene that has an intercut phone conversation must be shot in a minimum of two pieces, one in each caller’s location. Such a scene requires at least two breakdown sheets, each with its own set, dressings, props, and characters. The two pieces of the scene might be shot many days apart, with each requiring its own entry in the schedule.

“Many times there are scenes hiding within easily identifiable scenes which should be broken out and counted separately. ... The definition of a scene changes from person to person, but for the production manager, it is a unit of action which takes place in the same location over the same period of time” (Singleton, 20).

Once the breakdown sheets have been created, the production can be scheduled. This is traditionally done by creating a vertical paper strip for each breakdown sheet and organizing them on the production board. Strips can be moved from day to day as shooting requirements dictate.

3.2. SCRIPT CONTROL

The techniques described in this chapter require that the AD/UPM have a collaborative working arrangement with the screenwriter. At any point in time, one or the other must be designated as having the “master” copy of the script. Rigid discipline must be maintained so that changes, by either the screenwriter or the person doing the pre-breakdown planning, are made only by one person at a time. In effect, the AD/UPM “checks out” the master copy from the screenwriter, makes the production management additions, then returns the updated copy to the screenwriter.

During the time the script is “checked out,” the screenwriter makes no changes to the script or the result will be chaos. Parallel updates must not be permitted. Changes by the screenwriter should be made only after the “checked out” copy is returned. This method allows the script to become a production management database even while it is being finalized.

3.3. ORGANIZATION

Organization is key. When beginning preproduction planning using computer-based tools, a file folder structure is established to simplify locating the many files that proliferate as the production progresses. All files relating to a production should be kept within a single master folder (and its subfolders) for that production. Without this discipline, it is too easy for files to become scattered and hence difficult to locate.

Within the main *Pizza Wars* folder, for example, three subfolders were initially established: scripts, scheduling, and call sheets. These corresponded to the three main applications in the tool set: *Screenwriter*, *Scheduling*, and *Excel*. As production activities expanded, so did the folder structure.

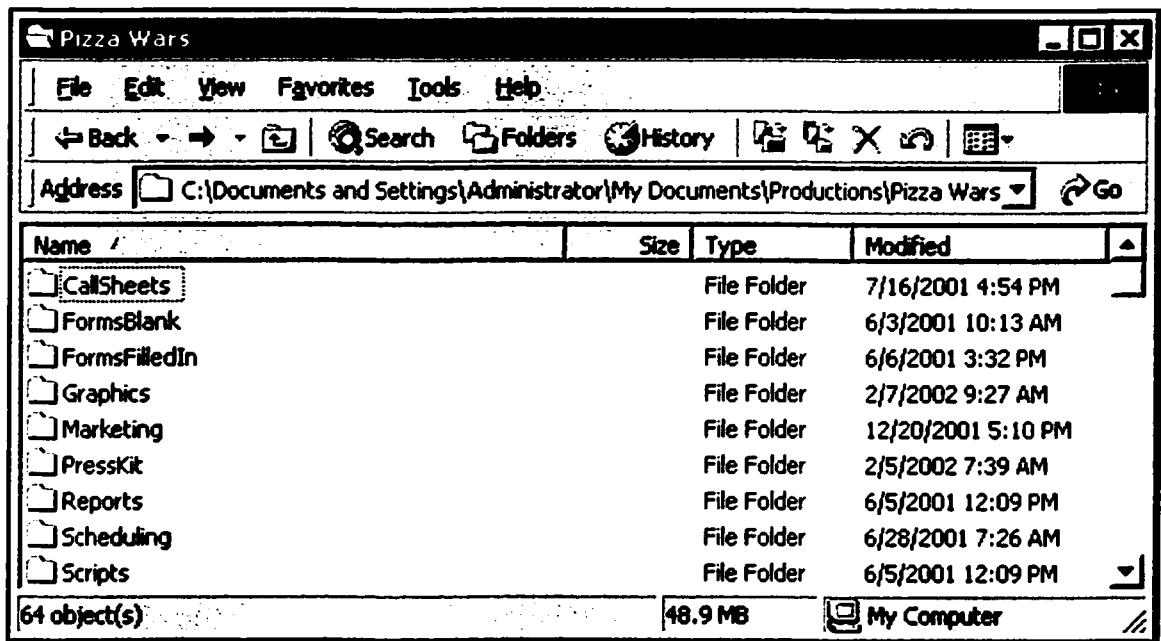


Figure 3. Folder Structure for *Pizza Wars*.

At the same time, a *Word* document was established to contain all known contingencies and restrictions on the shooting schedule. This document was maintained

throughout production, since change was constant. The importance of having all schedule contingencies in one place and up-to-date cannot be over-emphasized.

The latest copy of the script was placed in the Script folder. Neither *Pizza Wars* nor *Intentions* were written with *Screenwriter* so they were converted in order to take advantage of the production features. *Screenwriter* supports importing a variety of formats, most notably *Final Draft*'s Rich Text Format (RTF) output.

For *Screenwriter* and *Scheduling*, the defaults supplied with software were used to begin operation. Over time, these default parameters were modified slightly based on personal experience and preference. The first step was to turn on automatic scene numbering within *Screenwriter*.

The integration of *Screenwriter* with *Scheduling* is unidirectional; breakdown information entered into *Scheduling* has no way to flow back to the script. However, *Scheduling* can be used to “debug”¹⁵ the script from a production management point of view before beginning the formal breakdown process.

The *Screenwriter* “Export to Scheduling” function was used to create a file containing breakdown information from the script, at this point only scene headings and character names. This file was then imported into *Scheduling* and its reporting facilities used to highlight ambiguous areas, errors and potential production problems. The cycle of “update the script, export to *Scheduling*, analyze reports, update the script” was iterated several times.

¹⁵ A popular computer-industry term for locating and resolving errors.

During the screenwriting process, it is of little consequence¹⁶ if character names are misspelled occasionally or sets are not named identically in every slug line.¹⁷

Readers can still get the information they need to evaluate the script. A production manager looks at the script with a different set of requirements.

Use of *Scheduling* early in preproduction planning automates early identification of potential production issues. The following email to the screenwriter/producer/director summarizes initial observations during the first pass on the *Intentions* script:

Attached is your version 4 script converted to Movie Magic Screenwriter, with conversion errors cleaned up. All-caps action elements, e.g. DOOR BELL RINGS, are not handled well. Some are interpreted as shots, others as character names (which causes following action to be tagged as dialogue). These have all been fixed.

It will save time if you start making future changes in Screenwriter rather than FD¹⁸ since every conversion requires a couple of hours to fix the errors. Also, you can start tagging it while you're making changes.

I've copied Barnaby on this because of the next comments about set names in slug lines. Prior to production, these comments don't really matter. When organizing production, some changes to set names will make things easier in the scheduling: There are two spellings for the Regency Theatre (Theater). You should choose one or the other. There are three other theaters: Theater, Theater Seattle Washington, and University Theater. Are there four theaters total or are some of these the same place?

You may want to consider changing some names so they sort sets likely to be in the same location together in the

¹⁶ Other than demonstrating a lack of professionalism.

¹⁷ Written at the beginning of each scene in a script. Also called "scene description."

¹⁸ Final Draft, an alternative script formatting program previously described.

reports, e.g., Hotel Dance Club and Eve's Hotel Room might be named Hotel Dance Club and Hotel Eve's Room. I don't know enough about the script to know whether this example is correct, but you get the idea.

Similarly, Dr. Hawkins Office and Renee's Office might be prefixed with School so they sort with the set School (but where, a hallway?) and probably University Theater should be prefixed, as well. That way you can see all the sets together that need to be shot at school. Gives you a jump on location requirements planning. Use the same concept to get Payton's Room to sort with the rest of Renee's house. You might also want to rearrange the order of some names - they'll look a little funny but help in location planning.

For example, consider APARTMENT EVE's, APARTMENT ERIN'S, and APARTMENT MICHAEL'S. They would sort together and show you at a glance how many apartments you need. Adopting these "naming conventions" will make it much easier to quickly identify production requirements. (Igoe, SCW)

These changes have no impact on the story or the performances; they simply facilitate easier management of the preproduction and production processes. While at first glance such comments may seem pedantic, these details become increasingly important when preparing for production, particularly when using computer-based tools. The software packages cannot discern that "Mom & Pop's" and "Mom and Pop's" are the same set, or that Domminique and Dominique are really the same character.

The usefulness of having a naming convention for elements was discovered early, starting with "sets." *Pizza Wars* had multiple sets at Mom & Pop's place: kitchen, dining room, living room, the boys' bedroom, and Mom & Pop's bedroom. While "bedroom" may suffice for the slug line and the action makes it obvious that it is the boys' bedroom, not Mom & Pop's, such vagary is not helpful for planning and tracking the production.

Set names that have a logical or physical tie were started with the same keyword(s). This allowed the computer to sort them together.

Table 6. Scene Location (Set Name) Conventions for *Pizza Wars*.

Originally Scripted Name	Production Breakdown Name
Boy's Bedroom	Bedroom Boys'
Mom and Pop's Bedroom	Bedroom Mom & Pop's
Hallway	Bedroom Hallway
Kitchen	Mom & Pop's DR/Kit
Pizzeria	Mom & Pop's DR/Kit
Pizzaria	Mom & Pop's DR/Kit
Dining Room	Mom & Pop's DR/Kit
Mom and Pop's Pizzeria	Mom & Pop's DR/Kit
Mom & Pop's Pizzeria	Mom & Pop's DR/Kit

Establishing such consistency early in the process simplified preproduction planning and produced considerable insight into production requirements. For *Pizza Wars* this resulted in combining the Kitchen and Dining Room sets in order to reduce the number of sets to be constructed.

3.4. LOCATION PLANNING

One of the key challenges during preproduction is location planning. It is difficult to tell location owners when, and for how long, their facility will be needed until the production is scheduled, but the production cannot be scheduled until the locations are identified and availability known.

It is useful at this point to make clear distinction between “set” and “location.” The “set” is the scene “location” from the slug line in the script. The “location,” in a

breakdown sense, is the physical place where the “set” is located. The two bedrooms, hallway, living room, and dining room/kitchen at Mom & Pop’s were all “sets” on the same sound stage “location,” albeit at different times.

This distinction was particularly significant in managing the production of *Pizza Wars*. Many of the sets were built on the same two sound stage locations. Shooting had to be planned back and forth between the locations to allow sufficient time for the art department to tear down one set and build the next, while shooting proceeded on the alternate.

Scheduling was used to provide estimates of set and location timing requirements long before the schedule was fixed. When first imported from *Screenwriter*, the *Scheduling* file contained one breakdown sheet for each slug line (scene description) in the script. The sheet includes the number of script pages, counted in 1/8’s, contained in each scene.

Rough scheduling estimates are based on the number of pages per day that the director and DP¹⁹ expect to be able to shoot. No shooting day will actually produce this number of pages, but such an estimate is fundamental to developing the initial view of set and location time requirements.

For location and set estimating, the “production board” view within *Scheduling*, described in detail later, was used and the strips sorted by set name, day/night, and interior/exterior. The “auto day break” function was applied based on the “pages per

¹⁹ Director of Photography

day” estimate from the director. The production board was examined and adjusted (by “dragging”²⁰ strips to one day or another) to resolve any obvious problems. The “Day out of Days” report then provided a visual indication of how many days would be required on each set so the location manager could discuss the production requirements with prospective location candidates.

This is not a typical usage of the Day out of Days report format. In a manually managed production, this report is typically only used for cast members since it is so time-consuming to prepare. With *Scheduling*, these reports can be easily generated for any production element category at any time.

"Pizza Wars The Movie"			Schedule dated 18-Aug-01							Set Page 1						
July	Day of Month:	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	Day Of Week:	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	
	Shooting Days:	1	2	3	4		5	6	7	8	9	10		11	12	
	MOM & POP'S P. PANTRY															
	MUSIC VIDEO								SWF							
	STREET COP CAR															
	STREET DEBBIE DANCING															
	1. BEDROOM - BOYS'	SW	W	WF												
	2. BEDROOM - MOM & POP'S				SWF											
	3. BEDROOM HALLWAY															
	4. CHURCH													SWF		
	5. DELIVERY CAR BILLBOARD		SWF													
	6. DELIVERY CAR GENE AR			SWF												
	7. DELIVERY CAR TALKING											SWF				
	8. DELIVERY CAR TO OZCO											SWF				
	9. DELIVERY CAR TO STUDE											SWF				
	10. DESERT						SWF									
	11. SW TANKS TENT															

Figure 4. Day out of Days Report for Sets.

The “SWF” codes in the report are industry-standard, defined from the perspective of cast members, for whom this type of report originated. They are further explained in Table 7.

²⁰ A computer term for using a “mouse” to click and hold down the button and move the cursor to reposition an object on the screen.

Table 7. Work Status Codes.

Code	Work Status
S	Start working for the first time on the production
W	Working for the second or subsequent day
F	Working for the final day on this production
D	Working and then finished for at least the drop/pickup time, typically 10 days
P	Starting work on the production again after having previously worked and been dropped

As can be seen from the example in the preceding figure, many of the sets would only be needed for a single day, but the “Bedroom – Boys” set would be needed for three. Shooting would occur on two different sets on days two and three.

3.5. WORKSHEETS

To facilitate preproduction planning, a set of worksheets was developed. These were used as a repository for production design ideas. This early breakdown information was stored in the *Screenwriter* script so that when it was locked and the formal breakdown process begun, all information developed to-date was carried forward into *Scheduling*.

The planning sheets are individual spreadsheets in an *Excel* workbook. The first sheet in the workbook was established to contain reference cells for information common to all the other sheets in the workbook, minimizing data entry and ensuring all sheets had the same change-tracking information.

Picture Name	Intentions
Schedule Header	Production Schedule dated 6-Sep-01
Script Dated	Script dated 6-Sep-01
Production Period	Nov 1 thru Dec 8, 2001
Prepared by	Prepared by: Jack Igoe, AD
Worksheets Updated by	Updated: 7-Sep-01

Figure 5. Planning Workbook Information Worksheet.

Key to scheduling a production is knowing when resources, particularly actors, are available. Since *Intentions* was a local shoot, cast members were assumed to be available every day unless otherwise indicated. Therefore, a “Cast Non-Availability” sheet was created in which to mark those days and times a given character may not be available. This visually reflected notes in the “schedule contingencies” document previous described.

Production Schedule dated 6-Sep-01			Intentions														Nov 1 thru Dec 8, 2001			
NO.	CAST	CHARACTER	Thu 1-Nov	Fri 2-Nov	Sat 3-Nov	Sun 4-Nov	Mon 5-Nov	Tue 6-Nov	Wed 7-Nov	Thu 8-Nov	Fri 9-Nov	Sat 10-Nov	Sun 11-Nov	Mon 12-Nov	Tue 13-Nov					
1		ARIE																		
2		DR. HAWKINS																		
3		ERIN																		
4		EVE																		
5		GARRETT																		
6		GEOFF																		
7		LINDSAY																		
8		MAGGIE																		
9		MICHAEL																		
10		PAYTON																		
11		RENEE																		
12		STEVE																		
13																				

Figure 6. Cast Non-Availability Worksheet.

The worksheet was formatted so that it could easily be examined against the “Day out of Days” report for Cast to identify any potential scheduling problems.

The following sheet was used to identify wardrobe requirements early in preproduction planning. For *Intentions*, it highlighted that the main characters required more than twenty distinct costumes.

Production Schedule dated 8-Sep-01				<i>Intentions</i>									Nov 1 thru Dec 8, 2001	
S-day	Scn	IE	Set	DTI	Eve	Renee	Geoff	Erin	Payton	Michael	Lindsay	Arne		
	1	EXT	SCHOOL	Day	x	x	x	x						
	2	INT	RENEE'S KITCHEN	Night		x	x							
	3	INT	RENEE'S DINING ROOM	Night		x	x		x		x			
	4	INT	RENEE'S BEDROOM	Night		x	x							
	5	EXT	REGENCY THEATER	Night	x			x						
	6	INT	EVE'S APARTMENT	Night	x			x						
	7	INT	HALLWAY EVE'S APARTMENT	Day	x					x				
	8	INT	MICHAEL'S APARTMENT	Day	x					x				
	9	INT	UNIVERSITY THEATER	Night		x								

Figure 7. Wardrobe Planning Worksheet.

The “X’s” in each character’s column indicate that the character appears in the respective scene. These had to be entered manually, but the data was provided easily from the “Cast Member” report from *Scheduling*.

The Wardrobe Planning Sheet also introduces the notion of “script day,” shown here in the “S-Day” column on the far left. This field enhances the Day/Night indicator in the slug line with an indication of the time in the story in which the narrative action occurs. Script day is a simple continuity aid. None of the published texts discussed script day, although *Scheduling* provides for it.

To aid in identifying and recording “script day,” another worksheet was developed. It can also be used to contain a cross-reference to the script, shown in the “Page” column.

Scene/Page/Script Day Crossreference					
Scene	Page	Scr. Day	Scene	Page	Scr. Day
1	1	D1	32	45	D14
2	2	N1	33	47	D14
3	3	N1	34	47	D14
4	5	N1	35	47	D14
5	6	N1	36	54	D14
6	9	N1	37	56	D14
7	10	D2	38	56	D15
8	12	N2	39	59	N16
9	13	N2	40	61	N16
10	14	N2	41	64	N16
11	15	D3	42	66	N16
12	17	N4	43	69	D17
13	17	N5	44	73	D17
14	18	N6	45	75	N18
15	19	N7	46	76	D18

Figure 8. Script Day and Cross-Reference Worksheet.

The example shown above is from *Intentions*. The story takes place over a period of 20 days. The first six scenes occur on the first day of the story. The first scene occurs during the day, and the next five occur that night. Scene seven occurs during the second day of the story, and scenes 8-10 occur later that night. Scene 11 occurs on the third day of the story, and so on.

While the script contains all the character and set names, many additional props, set dressings, and other items will be required for the production that are not explicitly mentioned in the script. Identifying these is part of “production design,” and it need not wait for the final script. The next sheet facilitates gathering this information before the formal breakdown process is begun. It then serves as a data input document once the script is locked and breakdown activities commenced in *Scheduling*.

Production Schedule dated 6-Sep-01				Intentions				Nov 1 thru Dec 8, 2001	
S-day	Scn	IF	Set	DTI	Props	Set Dressing	Other		
	1	EXT	SCHOOL	Day					
	2	INT	RENEE'S KITCHEN	Night					
	3	INT	RENEE'S DINING ROOM	Night					
	4	INT	RENEE'S BEDROOM	Night					
	5	EXT	REGENCY THEATER	Night					
	6	INT	EVE'S APARTMENT	Night					
	7	INT	HALLWAY EVE'S APARTMENT	Day					
	8	INT	MICHAEL'S APARTMENT	Day					
	9	INT	UNIVERSITY THEATER	Night					
	10	INT	SCHOOL HALLWAY	Night					

Figure 9. Unscripted Elements Worksheet.

The “Other” column is used to identify requirements for vehicles, extras, special equipment, and so on.

The next sheet facilitates the job of the location manager managing places for the shooting to occur. While the previous two sheets had one line per scene, this sheet has one line per set, regardless of how many scenes in which it is used.

Script dated 6-Sep-01		Intentions		Nov 1 thru Dec 8, 2001	
ID	Set Name	Location (or tentative location)	Comments		
1	BAR				
2	BAR, HOTEL DANCE CLUB				
3	ERIN'S APARTMENT				
4	EVE'S APARTMENT				
5	EVE'S APARTMENT BUILDING				
6	HOTEL ROOM, EVE'S				
7	LAKE FOREST PARK				
8	MICHAEL'S APARTMENT				

Figure 10. Set-Location Planning Worksheet.

Knowing which sets will exist at the same physical location is an important scheduling consideration.

The amount of data entry effort to create these worksheets might have outweighed their benefit if a bit of automation had not been applied. A special “Category Export” report was created in *Scheduling* and used to “print to file” plain text versions of the category listings.

BAR
BAR, HOTEL DANCE CLUB
ERIN'S APARTMENT
EVE'S APARTMENT
EVE'S APARTMENT BUILDING
EVE'S APT. FRONT IN CAR
GEOFF'S OFFICE
HOTEL ROOM, EVE'S
LAKE FOREST PARK
MICHAEL'S APARTMENT
REGENCY THEATER
RENEE'S HOUSE
RENEE'S HOUSE, BEDROOM
RENEE'S HOUSE, DINING ROOM
RENEE'S HOUSE, GEOFF'S STUDY

Figure 11. Category Export Report for Sets.

These text files were then opened with *Excel* and used to “cut and paste” into the planning worksheet templates, eliminating most of the data entry effort.

3.6. SCRIPT MANAGEMENT

All versions of the script were stored in the “scripts” folder. When the script was finalized, it was locked using the Production facilities of *Screenwriter*. The name of the production was used as the file name so it could be added to the header when script pages were printed. This function is located in the “format script” menu.

Once the script is locked, it is under formal revision control. An industry standard color code is used to indicate the revision. The first issue is white, followed by blue, pink, yellow, green, goldenrod, and so on. As the script undergoes the inevitable changes, it becomes a rainbow of colors. The “goldenrod” script contained pages that were revised at the white, blue, pink, yellow, and green levels, as well.

To keep track and always be able to recover, a rigid naming convention was established for script file names: [film name]-[nn]-[color]. The “nn” number, 01 for white, 02 for blue, and so on, was inserted so the files would sort in chronological sequence, something not possible by just using the color names. This results in file names like “INTENTIONS-02-BLUE.SCW²¹,” denoting the first revision (second version) of the script for *Intentions*.

The PDF-writing capabilities of *Screenwriter* were used to create two files for each revision, one for the complete script at that level, and one for only the pages that changed. These were stored using a similarly rigorous naming convention: [film name]-[nn]-[Color]-FULL and [film name]-[nn]-[Color]-LEVEL-[rev color]-ONLY.²² The previously mentioned script file, INTENTIONS-02-BLUE.SCW, would then have two associated “print” files, INTENTIONS-02-BLUE-FULL.PDF and INTENTIONS-02-BLUE-LEVEL-BLUE-ONLY.PDF. All distributions were then made by printing these PDF files, ensuring that everyone had the same script pages. Persons

²¹ SCW is the file-type suffix added to files created by Screenwriter.

²² In retrospect, the “LEVEL-[rev color]- ” is redundant and can be removed from the naming convention.

already having the WHITE script would be given just the changed pages in the “BLUE-ONLY” file. Persons needing the current script but who had not previously received one would be given a printout of the “BLUE-FULL” file.

4. SCRIPT BREAKDOWN

Use of the planning techniques described in the previous chapter saved considerable time when completing the formal breakdown. Scene numbering was handled automatically by *Screenwriter*.²³ The list of sets and locations was already developed and available for reference. Scripted elements were tagged. Unscripted elements were entered and associations created for characters and sets as required. A final export to *Scheduling* was made and all further breakdown activity conducted there.

Scheduling offers two views: breakdown sheets and the production board strips. The production board is the primary view for scheduling the film. The breakdown sheet is the primary view for entering additional production elements for each shooting unit.

Figure 12. Screen Breakdown Sheet View.

²³ *Final Draft* also has this capability, but not the other production facilities.

In either view, the small vertical strips under the menu bar represent a miniature view of the production board. Double-clicking on any strip moves the display to the corresponding breakdown sheet.

The report version of the breakdown sheet view was customized to include all information in the screen view, plus change-tracking data like “script dated.”

Scene # 19 Starting Script Page 18 Page Count 2 3/8 Jack Igoe, UPM	<i>Pizza Wars The Movie</i> Breakdown Sheet <small>(script dated 30-Jul-01, breakdown dated 18-Aug-01)</small>	Bkdown Sht # 19 In/Ext INT Day/Night Night Sript Day N2
Scene Description: Oregano make pizzeria very busy Setting: MOM & POPS P. DR/KIT Location: SJSU Hal Todd Theatre		
Cast Members 1 SCOOTER	Set Dressing Chairs at Mom & Pop's (16)	Props Merril's Palm Pilot

Figure 13. Breakdown Sheet - Top.

This sample breakdown sheet from *Pizza Wars* shows more information than was visible on the first import from *Screenwriter*. It is included here to highlight the data fields that should be initialized in *Scheduling* before continuing with the breakdown.

Starting with the “Design, Picture Info” menu, the show title and production company information are entered. Both name and position should be entered in the “Prepared By” field so that the “author” and his or her job function can be included on reports. While *Scheduling* contains a field for “Script Dated,” it does not contain fields for “Schedule Dated” or Breakdown Dated.” These data are important for revision control. The fields “Misc. #1” and “Misc. #2” are used for this purpose. These fields are included in reports to ensure that persons viewing them know when the information was

prepared and on what planning cycle it is based. Fields are included only on reports to which they pertain.

Picture Title:	F...		
Prod. No.:		Prepared By:	Jack Igoe, UPM
Company:	Elvis Ain't Dead Productions	Timing:	
Director:	Babak Sarrafan	Episode No.:	
Producer:	Nick Martinez	Misc. #1:	18-Aug-01
U.P.M.:	Jack Igoe	Misc. #2:	18-Aug-01
Asst. Director:	M. Flores, J. Igoe	Misc. #3:	1-408-924-5759
Art Director:	Kim Melhoff, John York, Danie	Misc. #4:	1-408-924-4583
Set Dresser:			
Script Dated:	30-Jul-01	Cancel	OK

Figure 14. Picture Info Entry.

The standard breakdown sheet report format provided with *Scheduling* does not show such information, so a custom format was developed. It was particularly important that the “Schedule Dated” information, stored in Picture Info field “Misc. #1,” was included on every schedule-related report. Schedules change almost daily during production. Since breakdown sheets are not schedule-dependent, “Schedule Dated” is not included, only “Script Dated” and “Breakdown Dated.”

Singleton recommends color-coding the breakdown sheets in the same manner as the production board (18). His rationale is that “Physically having to re-read the breakdown sheets every time you want to know whether a scene is an interior or not is a waste of valuable time” (19). The customized breakdown sheet shown previously in

Figure 13 contains all this information in the upper right-hand corner, available at a glance, so color-coding these breakdown sheets is of questionable value.

Once the Picture Info is entered, the breakdown sheet for each scene is accessed and the synopsis, location (if known at this point), and script day are entered.

The body of the breakdown sheet contains listings of all elements in each category. All elements tagged in the script will appear in the appropriate category.

Others will have to be added manually, starting with those gathered from the “Unscripted Elements” planning worksheet previously described. As production design proceeds, the rest of the elements are added to each category.

Cast Members 1. SCOOTER 2. POP 3. CORNELIUS 4. MOM 7. GENE 10. MERRIL 21. HIGHWAY PATROLMAN 22. NUN 24. FRAT BOY 25. SORORITY GIRL 30. ASIAN DOUGH DEALER 32. IRISH DOUGH DEALER 34. PORTUGUESE MAN 35. PORTUGUESE WOMAN 37. SADDAM	Set Dressing Chairs at Mom & Pop's (16) Tables at Mom & Pop's (4)	Props Merril's Palm Pilot Pizza - Bacon & Egg, sliced Pizza slice
Sound 5 Clock ticks 10 Front door bell tinkles	Costumes Andrew T-shirt Shorts Outfit Asian Dough Dealer outfit Frat boy outfit Gene Army Shirt Shorts Outfit Highway patrolman mirrored shades Highway Patrolman outfit Irish Dough Dealer outfit Merril's regular outfit Mom's apron Mom's regular outfit Nun outfit Omar T-shirt Shorts Outfit Pop's regular outfit Portuguese Man outfit Portuguese Woman outfit Sorority girl outfit	Extras Andy double as SCOOTER Cops (2) Frat boys (5) Omar double as CORNELIUS Sorority girls (7)

Figure 15. Breakdown Sheet - Body.

Pop-up menus are provided to reduce data entry effort. Once an element is added to a category in any scene, it is subsequently available for “mouse-click” selection in any other scene and does not need to be entered again.

Singleton’s Chapter IV. is very detailed about each breakdown element category and should be studied by any first-time AD/UPM. The process is somewhat akin to playing detective, scrutinizing every scene for production elements and shooting requirements.

While pop-up menus are available in breakdown sheet view for individual categories, it is sometime faster to enter a number of elements using *Scheduling’s* “Element Quick Entry” facility. Elements may be added, deleted, or changed in any category.

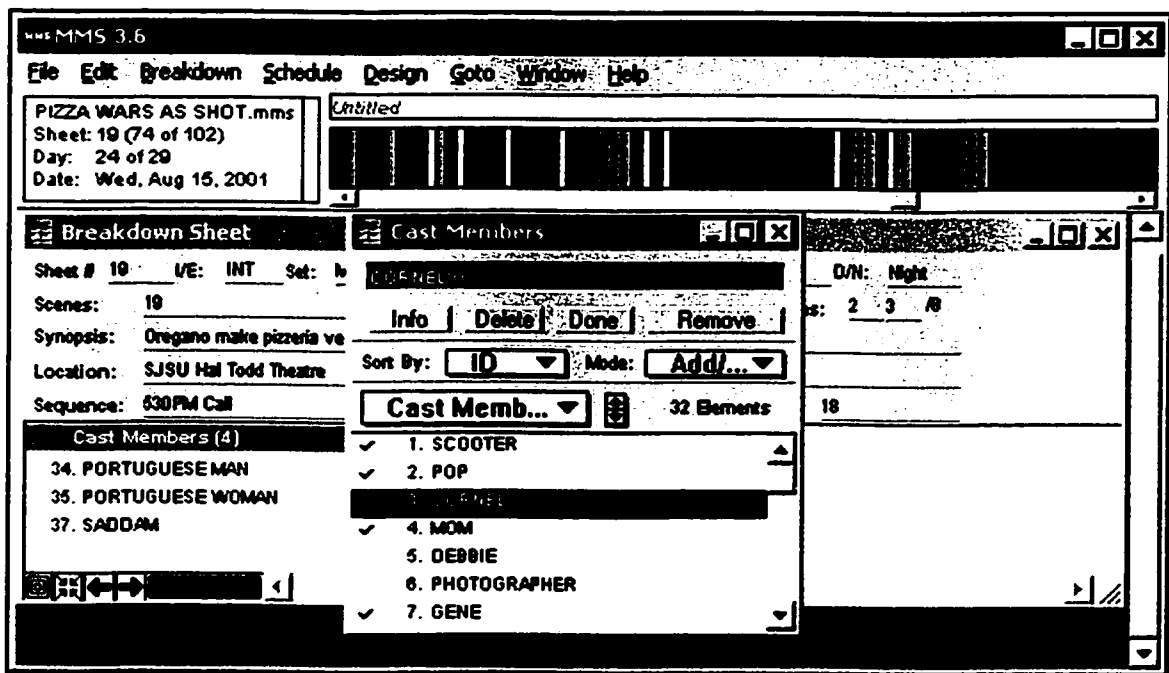


Figure 16. Element Quick Entry.

Before production could be scheduled, “units of action” had to be identified and breakdown sheets added or consolidated. While Singleton refers to these units of action as “scenes,” it is perhaps more useful to keep scene numbers consistent with the script and establish a numbering scheme for breakdown sheets that ties them to the scene number whenever possible.

The intercut phone conversation mentioned in Section 3.1 was in scene 34 from *Intentions*. The breakdown sheets were numbered 34A and 34B. Scene 38 in *Pizza Wars* was a music video montage shot in six different locations on five different days. This required six breakdown sheets, numbered 38, and 38A through 38E. In retrospect, these sheets should have been numbered 38A through 38F, establishing as a convention that a sheet number without an alphabetic suffix was the only breakdown sheet for the correspondingly numbered scene.

The following example is from a script that has a character called DISPATCHER and highlights another issue in scheduling-related breakdown.

Cast List					
Name	Start	Finish	Total Days	Tot. Pages	Pay
DISPATCHER			0 Days	5 4/8 Pgs.	\$0
SCENES: 25 , 26 , 35 , 48 , 53 , 57					
SETS: K, STREET, TUFF'S PATROL CAR, FP PARKING LOT					
DISPATCHER (V.O.)			0 Days	6 7/8 Pgs.	\$0
SCENES: 9 , 12 , 22 , 23 , 25 , 26					
SETS: PATROL CAR, PARKING GARAGE, MALL, STREET, K					

Figure 17. Character Scheduling Example.

DISPATCHER does not appear on camera in scenes 9, 12, 22, 23, 25, and 26. Therefore, that character would not be included in the breakdown sheets for those scenes.

However, this character's voice is an important part of the finished production of these scenes. A shooting unit, in the form of a breakdown sheet, would be created to schedule recording the audio for all of these scenes at the same time. This breakdown sheet would have only DISPATCHER as Cast, regardless of who else might be in the scene, and would likely be set in a recording studio location totally unrelated to the sets for the scenes identified. It would also be scheduled for considerably less time than 6-7/8 pages would normally require since there are no camera setups or lighting requirements.

Only after the script is completely broken down into shooting units can real scheduling begin. "Breaking down the script to prepare for the production board is a painstaking task. It is also one of the most important parts of scheduling a film" (Singleton, 17).

5. SCHEDULING

5.1. DYNAMICS

“It should now be clear why no real progress on a production can begin until the shooting script has been produced” (Gates, 57). While the objective of script breakdown is the identification of production elements and shooting requirements, the objective of scheduling is the properly timed arrival of those elements in order to complete the production on the planned timetable. “This means that the production manager has to ensure that all the material that is needed for a production is available, from the most exotic location to the street around the corner, from the largest set to the smallest prop, and this material is available at the right times, at the right place, in the right amount, and at the right price, and that everyone knows what is expected of them” (Gates, 1).

Scheduling is a dynamic activity. Obst uses the term “punting.” to describe “the art” of dealing with changing contingencies. “The best skill in production is knowing how to punt – find some other way of doing what needs to be done when you discover that it can’t be done the way you originally planned. In production terms, punting is riding the horse in the direction it’s going. Not complaining that things weren’t as you had expected but making things work the way they are. Reality crunch; deal with it” (81).

Sarrafan describes it somewhat more simply: “Remember, no matter how dark it is, there’s always a flashlight somewhere” (Conversation).

“Punting is changing tactics with equanimity. Without panic or hysteria, we punt when we must reconceive an entire scene, stunt, or setup to conform with newly

discovered production realities. In each department the mark of a pro is his skill in punting” (Obst, 209).

Production scheduling is somewhat analogous to the old plastic game where you push the squares around to get the colors lined up. The challenge of film scheduling is that the problem is multidimensional, more akin to Rubik’s Cube, and during production, the “squares” keep “changing color.” The easiest way to view all the “squares” is a Production Calendar.

14-Aug-01 Production Schedule

Pizza Wars The Movie

July 17 thru August 21, 2001

10 Monday	17 Tuesday	18 Wednesday	19 Thursday	20 Friday	21 Saturday	22 Sunday
X	23-24 BOYS' BEDROOM Gene and boys discuss pop	5-11 DELIVERY CAR Watching billboards 25 BOYS' BEDROOM Gene tells about website	43 BOYS' BEDROOM Boys push for third wish 14-15 DELIVERY CAR Gene and pop arrive	26 MOM & POP'S BEDROOM Pop tells Mom about Boys		62 TWO LANE ROAD Drive off in Cadillac 6A DESERT EXTERIOR Burns's coming in Gene
23 Monday	24 Tuesday	25 Wednesday	26 Thursday	27 Friday	28 Saturday	29 Sunday
54C GREEN SCREEN Sophia, Jose, Vincento Debris, Portuguese 9 GOODMOTHER'S PIZZA Billboard comes to life 37 GOODMOTHER'S PIZZA Talks about what's hot	38B MUSIC VIDEO Dancing at Tropicana 44D GREEN SCREEN Domer, Chester, Veronica 19 PIZZA DE SADE Billboard comes to life 31 PIZZA DE SADE Domerique no business	46 PIZZA DE SADE Domerique José Boys	46 GREEN SCREEN Frustrated, Cris, Wanda Cris 8 FRENCHIE'S PIZZA Brianna comes to life 29 FRENCHIE'S PIZZA Phoebe becomes suspicious	1-3 PHONE BOOTH Boys talk to Mom 58 DELIVERY CAR Drive to Ozord 44 DELIVERY CAR Drive to TV studio 53 DELIVERY CAR Talks about website		61 CHURCH Wedding scene
30 Monday (12)	31 Tuesday	1 Wednesday (13)	2 Thursday (14) 2:30PM	3 Friday (15) 2:30PM	4 Saturday (16) —NO SHOT	5 Sunday (17) 2:30PM
14P GREEN SCREEN Debris, Mom, Pop 46 LIVING ROOM Marti arrives in Iraq 35 LIVING ROOM Mom & Debbie talk		TV Studio Pipes & special effects	46 PARTY Scooter & Debbie 72-73 PANTRY Debbie's phone call to C2 29 BOARDROOM Lough the cat	10 BOARDROOM Congratulate Debbie 37 BOARDROOM Marti this coup, boys join	37 BOARDROOM Marti this coup, boys join 60A GREEN SCREEN Sophia, Marti, Jackson 38 INTERROGATION RM Ozcorp tortures Boys	37 BACKSTAGE Marti reveals Debbie 32-33 BOARDROOM Marti's phone to Debbie 37 BOARDROOM Debbie, Marti only 44D GREEN SCREEN Marti, Red, Stuffed Animal
6 Monday (16) 7:30PM	7 Tuesday (17) 7:30PM	8 Wednesday (18) 7:30PM	9 Thursday	10 Friday (19) —NO SHOT	11 Saturday	12 Sunday (20) 1:30PM
38C STREET DANCING Debbie passes out pizza 48 MERRILL'S CAR Drive by Gene the Cop 47 MERRILL'S CAR Conspire with Debbie	60A GREEN SCREEN Sophia, Jackson 51 EXT LIMB Boys captured 52 EXT LIMB INTERIOR Boys questioned	45A TV Studio Phoebe has boys on show		48 SULTAN'S TURT Gene is unfounded in bong (Shoot out Stephana)		
13 Monday (21) 8:30PM	14 Tuesday (22) 8:30PM	15 Wednesday (23) 8:30PM	16 Thursday (24) 8:30PM	17 Friday (25) 8:30PM	18 Saturday (26) 8:30PM	19 Sunday (27) 8:30PM
12 HEADSHOP FRONT Car screams to halt PIZZERIA FRONT (2 scenes) 36 - Pop tells boys abt Debbie 4 - Debbie car spurs away	13 EXT HEADSHOP Boys & Grasshopper	19 DINNER ROOMKIT Oregonio makes pizza successful and busy 38 DINNER ROOMKIT Debbie does Oregonio (Dinner room dancing party) 60B LIGHT BULB CALL	23 DINNER ROOMKIT Debbie arrives at party busy Pizzeria	54 DINNER ROOMKIT Boys come back 55 DINNER ROOMKIT Mom & Pop juggled 42 DINNER ROOMKIT Pop tells Debbie abt Boys 38A DINNER ROOMKIT Kitchen dialogue part - new	38 DINNER ROOMKIT Scooter talks to Debbie 56 DINNER ROOMKIT Debbie change of heart 2 DINNER ROOMKIT Marti's call from Scooter 16 DINNER ROOMKIT Pizzeria is empty	18 DINNER ROOMKIT Boys introduce Gene 17 DINNER ROOMKIT Mom & Pop talk 43B DINNER ROOMKIT Marti threatens Pizzeria
20 Monday (28) 3:00PM	21 Tuesday (29) 3:00PM	22 Wednesday	23 Thursday	24 Friday	25 Saturday	26 Sunday
27 DINNER ROOMKIT Scooter talks Pop abt Mom 34 DINNER ROOMKIT Marti tells Debbie 38D DINNER ROOMKIT Debbie/Gene four figs	34 BEDROOM HALLWAY INT - Pop refers to Boys 39 BEDROOM HALLWAY INT - Gene refers 41 PIZZA DE SADE Ed - Gene watching 20-40 PIZZA DE SADE EXT - Boys arrive	WRAP PARTY				

Only 9 out of 10 days are for pickups, not necessarily all. Everyone on call. Production meeting daily 10 AM, before main crew call.

Copyright © 1997-2001 11/4/2002 9:12 AM

Figure 18. Production Calendar.

This Excel spreadsheet must, unfortunately, be created and maintained manually. The benefit is well worth the effort, however, since it can convey a significant amount of

information on a single page. Note that the production calendar is a representation of the *Scheduling* database and does not replace it.

The upper left corner of the production calendar contains the date of the *Scheduling* file on which it is based. The upper right corner shows the length of the overall production schedule. The lower left corner shows any special notes regarding the calendar, and the lower right corner shows the date and time the calendar was created. The block for each day summarizes the shooting plan.

6 Monday (18) 7:30PM 39C STREET DANCING Debbie passes out pizza 48 MERRIL'S CAR Drives by Gene the Cop 47 MERRIL'S CAR Desperate with Debbie	7 Tuesday (19) 7:30PM 60A GREENSCREEN Sophia, Saddam 51 EXT LIMO Boys captured 52 EXT LIMO INTERIOR Boys questioned	8 Wednesday (20) 5:30PM 45A TV Studio Pierre has boys on show	9 Thursday
13 Monday (22) 8:30PM 12 HEADSHOP FRONT Car screeches to halt PIZZERIA FRONT (2 scenes) 36 - Pop tells boys abt. Debbie 4 - Delivery car spurts away	14 Tuesday (23) 6:00PM 13 INT HEADSHOP Boys & Grasshopper	15 Wednesday (24) 5:30PM 19 DINING ROOM/KIT Oregano makes pizzeria successful and busy 38 DINING ROOM/KIT Debbie does Oregano (Dining room dancing part) 4PM LIGHTING/GRIFF CALL	16 Thursday (25) 5:00PM 22 DINING ROOM/KIT Debbie arrives at very busy Pizzeria

Figure 19. Production Calendar - Detail.

The upper left corner of each day shows the numbered day of the month. To the right follows the day of the week, the “shoot day,”²⁴ and the main crew call time. Under each day are shown the sets and short synopses of the shooting to be completed that day. If breakdown sheet numbering conventions have been followed, the breakdown sheet number should be used instead of the scene number, conveying an additional level of

²⁴ Numbered sequentially, not counting days off.

detail without occupying additional space. Note sheet “38C” on Monday, the 6th and sheet 38 on Wednesday, the 15th.

Figure 20 illustrates a scheduling challenge faced during the production of *Pizza Wars*. The “Bedroom Hallway” set could not be completed in time to shoot on Wednesday, the 8th if the “Sultan’s Tent” set was to be completed in time to shoot on Friday, the 10th. The “Sultan’s Tent” scene might also require two days to shoot rather than one. The “Sultan’s Tent scene had to be completed no later than the 11th since a key actress in the scene was flying to Europe on the 12th and would no longer be available.

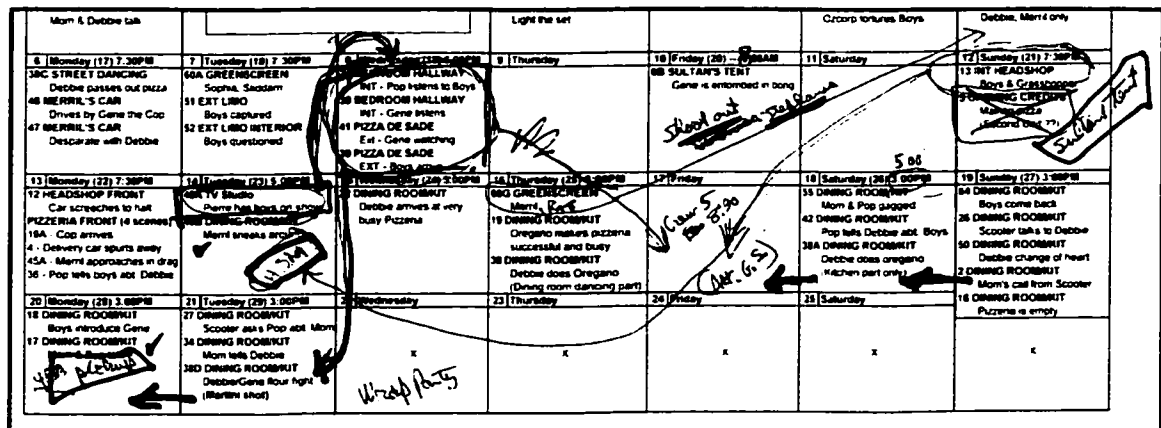


Figure 20. Production Calendar - "Pushing the Squares"

This figure is a copy of the UPM’s notes from the August 5th production meeting (Igoe, personal). It is classic example of “pushing the squares around” to accomplish the production.

Note that this meeting was addressing issues for the following week, not just the next day. Seeing the production in its entirety aids significantly in avoiding problems. Had the production team not been working closely with the art department and foreseen the issue, the production would likely have failed to get the shots necessary to tell the

story as planned. That would have required a rewrite and re-shoot of the entire beginning of the movie, a very expensive and problematic challenge.

With the addition of a fun graphic, this same format can be used to show production progress, as shown in Figure 21. This can be a morale boost for the cast and crew, particularly if publication is started at the point they begin to feel fatigued by the rigors of shooting.

6 Monday (18) 7:30PM STREET DANCING Debbie passes out pizza MERRIL'S CAR Drives by Cops the Cop MERRIL'S CAR Desperate with Debbie	7 Tuesday (19) 7:30PM GREENSCREEN Sophia, Saddam EXT LIMO Boys captured EXT LIMO INTERIOR Boys questioned	8 Wednesday (20) 5:30PM TV Studio Pierre has boys on show	9 Thursday
13 Monday (22) 8:30PM 12 HEADSHOP FRONT Car screeches to halt PIZZERIA FRONT (2 scenes) 36 - Pop tells boys abt. Debbie 4 - Delivery car spurts away	14 Tuesday (23) 6:00PM 13 INT HEADSHOP Boys & Grasshopper	15 Wednesday (24) 5:30PM 19 DINING ROOM/KIT Oregano makes pizzeria successful and busy 30 DINING ROOM/KIT Debbie does Oregano (Dining room dancing part) 4PM LIGHTING/GRIFF CALL	16 Thursday (25) 5:00PM 22 DINING ROOM/KIT Debbie arrives at very busy Pizzeria

Figure 21. Production Calendar - Progress Report.

5.2. PRODUCTION BOARD

The production board view in *Scheduling* is an electronic version of the traditional production board, with a strip for each breakdown sheet. When the script is first imported into *Scheduling*, the strips are in scene sequence as if the entire production would be shot in script sequence on a single day. Additional strips would have been added during the second phase of breakdown. The production board strips are color-coded: yellow for exterior/day, white for interior/day, green for exterior/night, and blue for interior/night.

The Production Board view shows the shooting plan day-by-day, sheet-by-sheet. It contains a considerable amount of information in a small amount of space. The production board is used because it presents the entire schedule in a way that can easily be assimilated. "If you were trying to schedule your project using only the breakdown sheets, you would have quite a cumbersome task in trying to look at all the breakdown sheets simultaneously." (Singleton, 41).

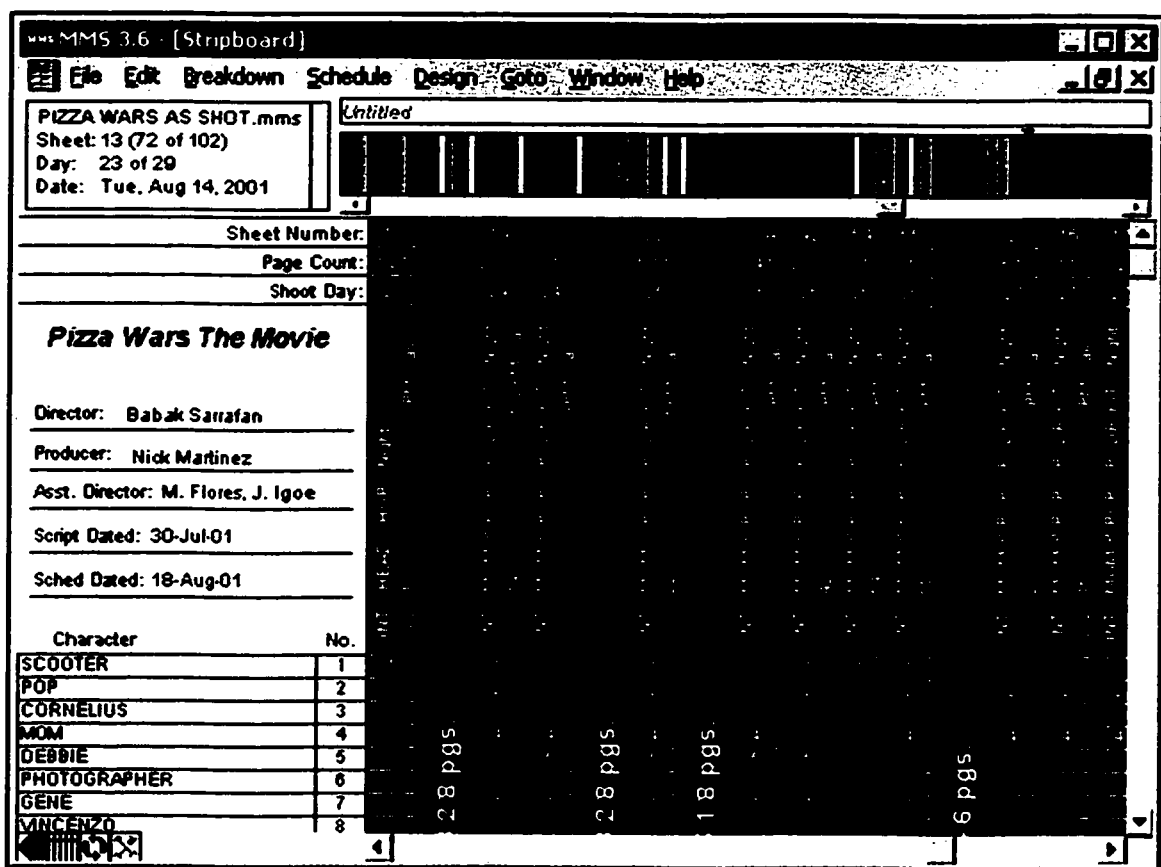


Figure 22. Screen Production Board View.

This example shows the Production Board view for *Pizza Wars* after the production had been scheduled. The printed counterpart of the Production Board view will be used to explain the board before describing the scheduling process.

As with most report formats supplied with *Scheduling*, the Production Board did not contain sufficient information to be useful, so it was customized to increase information density.

Sheet Number: 23		5	25	43	14	29	59C	1A	60C	8	37
Page Count: 5/8		2 1/8	1	1 2/8	4 2/8	1 4/8	1/8	2/8	1/8	5/8	1 5/8
Shoot Day: 1		2	2	3	3	4	5	5	6	6	6
Pizza Wars The Movie		EXT - DELIVERY CAR BILLBOARDS - Night Scs 5 7 9 11 6PM Call		INT - BEDROOM - BOYS' - Night Scs 43 2PM Call		INT - BEDROOM - MOM & POP's - Night Scs 29 6PM Call		EXT - TWO LANE ROAD - Day Scs 62 --> 5AM Call		INT - GREENSCREEN - Scs 60 Before Scene	
Director Babak Sarrafan		INT - BEDROOM - BOYS' - Night Scs 23-24 5PM Call		EXT - DELIVERY CAR GENE ARRIVES - Scs 14/15 7PM Call				EXT - DESERT - Dusk Scs 0A 12Noon Call		INT - GODMOTHER'S PIZZA - Night Scs 8 6PM Call	
Producer Nick Martinez										INT - GODMOTHER'S PIZZA - Night Scs 37 6PM Call	
Asst Director M. Flores, J. Iggoe											
Script Dated 30-Jul-01											
Sched Dated 18-Aug-01											
Character	No.										

Figure 23. Production Board, top

The left-hand side of the production board is called the header board. The upper portion of the header board contains basic information about the crew and, most importantly, the script and schedule date upon which the board is based. Any time the strips are rearranged, the "Schedule Dated" field stored in "Picture Info" field "Misc. #1" should be updated to reflect that a new schedule has been created.

The header board is followed to the right by a strip for each breakdown sheet, day break, and banner the AD/UPM added to the board.

The "Sequence" field in *Scheduling* was used to store the main call time for the shooting unit, displayed in the upper right-hand corner of each strip. This facilitated easy identification of scheduling problems related to turn-around time. Early morning call times should not follow late night shoots without a day off in between. It also helped

clarify any confusion regarding when the scene would actually be shot. When shooting on a sound stage, night scenes can be shot at any time of day.

The middle of the header board lists all of the characters in the show, along with a number representing that character, called the Board ID. These numbers are then used in the strips that represent the breakdown sheets to indicate which characters appear in each shooting unit. The targeted conclusion of each shooting day is clearly visible in the center of the day break banners.

Character	No.	IN	SC	EX	SC	IN	SC	EX	SC	IN	SC	EX	SC	EX	SC	IN	SC	EX	SC
SCOOTER	1	1		1	1			1	1			1							
POP	2							2											
CORNELIUS	3	3		3	3			3	3			3							
MOM	4							4											
DEBBIE	5											5							
PHOTOGRAPHER	6											6							
GENE	7	7			7			7	7					7					
VINCENZO	8															8	8	8	
MERRIL	10																		
JOEY	11															11	11	11	
SULTAN OF OZBUCA	12															13	13	13	
SOPHIA	13																		
PIERRE	14																		
ORAN	15																		
SUZY	16																		
WENDY	17																		
DOMINIQUE	18																		
CHESTER	19																		
VERONICA	20																		
HIGHWAY P	21																		
NUN	22																		
GRASSHOP	23																		
FRAT BOY	24																		
SORORITY	25																		
ASIAN DOU	30													31		30	30		
ASIAN BAN	31															32	32		
IRISH DOU	32													33		34/35	34/35		
IRISH BANDIT	33																		
PORTUGUE	34																		
PORTUGUE	35																		
SADDAM	37	37		37	37			37	37			37							
EXOTIC BEL	36																		
Extras														E 1			E 13	E 3	

Figure 24. Production Board, middle.

Board IDs are typically assigned in descending order of the number of pages of script in which the character appears, with Board ID 1 having the largest part. Other factors will influence this assignment. In *Pizza Wars*, several actors played multiple characters so each was assigned contiguous Board IDs for all of their characters. At the bottom of this section of the strip is the count of extras in the scene.

“As a rule of thumb, however (and use this guideline with caution), it takes one hour to set up equipment and lights and to get the location in shape for filming; it takes slightly less to wrap” (Cleve, 27). In his Chapter 6, Gates goes into some detail about issues in estimating the amount of time required to shoot a scene.

The actual scheduling process is started by sorting the strips by set, day/night, and interior/exterior. The “Auto Day Break” function is then used to add day breaks based on the “script pages per day” target established by the director and DP. Adjustments are then made (by dragging strips around) based on the scheduling contingencies document, special scene requirements, and so on. The strips and the breakdown sheets are electronically linked, making the *Scheduling* file a complete repository of production elements required to shoot the film.

Shooting requirements vary widely, scene to scene. Each scene must be individually examined and planned. An action line like “She watches the three video monitors” might require up to four breakdown sheets, one for the main scene, and one each for what is appearing on the monitors. An action line as simple as “They fight” might take many days to shoot. “We spent six weeks on that Battle of Stirling” (Gibson). The splitting and merging of breakdown sheets should be completed before attempting to refine the schedule.

Singleton enumerates the many scheduling considerations in what he calls “Parameter Factors.” These are the general factors that must be evaluated in determining the shooting schedule.

In deciding what to schedule when, certain factors must be considered. Here, then, in order of their priority, is the list.

- 1) Locations
- 2) Cast Members
- 3) Day/Night Shooting
- 4) Exteriors/Interiors
- 5) Shooting In Sequence
- 6) Child Actors
- 7) Changes in Time Periods
- 8) Time of the Year
- 9) Weather Conditions
- 10) Special Effects & Stunts
- 11) Second Camera and/or Second Unit
- 12) Special Equipment
- 13) Geography of Locations
- 14) Miscellaneous Factors (55)

Singleton's Chapter VIII provides significant detail about how to determine how long it will take to shoot a scene. He reviews Francis Ford Coppola's script for *The Conversation*, shooting day by shooting day, describing all the scheduling issues addressed and why certain scenes were shot on certain days. The memo in Appendix A.5 shows a number of the issues considered in the scheduling of *Intentions*.

Gates adds three key items of advice in his discussion of the topic: schedule pick-up time (74), schedule key shots early (75), and schedule realistic working hours (75).

5.4. REPORTS

Scheduling provides a basic set of report formats for category lists, days out of days, one-line schedules, detailed shooting schedules, and many others. In all cases, they were customized to include at least the script, schedule, and breakdown dates where required.

The advantage of generating production-related reports with *Scheduling* is clear: they are derived from a common database of production information. When any element is changed, the change is reflected in all subsequent report generations. This is the production implementation of the expression “keeping everyone on the same page.” Some representative reports illustrate the usefulness of this approach.

The “Day out of Days” report was discussed in the section on preproduction planning. This report continues to be useful during production. It is a good communication vehicle to show, at a glance, which actors are required on which days. It is also a good report to use to validate schedule changes against contingencies and to check for production inefficiencies. “Day out of Days” reports can be produced for any category.

“Day out of Days” reports for Cast, Set, Location, Special Equipment, and Livestock are useful tools to optimize overall production efficiency. They present, at a glance, resource utilization day by day. They can quickly be regenerated as the schedule is adjusted. This would be an onerous task to do manually.

The "Advance Schedule" report shows, on a new page for each shooting day, the total production requirements for all scenes to be shot on that day. This is essentially a consolidation of the breakdown sheets for all the shooting units for that day. It is particularly useful for staging production elements that must be transported to a location. If scenes are shot in multiple locations on a given day, the individual breakdown sheets should be used instead.

Pizza Wars The Movie Advance Schedule <small>(script dated 30-Jul-01, breakdown dated 18-Aug-01, schedule dated 18-Aug-01)</small>				Page 2 Mon, Jan 14, 2002 Jack Iggoe, UPM
SHOOT DAY #2 - Wed, Jul 18, 2001			3 1/8 Pgs.	
Scene 5, 7, 9, 11 25	Sheet 5 25	DELIVERY CAR BILLBOARDS BEDROOM - BOYS'	Coleman at Hobson St SJSU Hal Todd Theatre	Boys in car, smoking out, watching bill Gene tells about wishes
Cast Members 1 SCOOTER 3 CORNELIUS 7 GENE 37 SADDAM			Notes Cast report to HGH for Makeup/Wardrobe then go to set Need transport for cast - HGH to Coleman Skeleton Crew	
Extras Dog wrangler Elliott			Vehicles Onveby Vehicles (10) Mopeds Pizza Delivery Car	
Props Bong, old, worn, Magic Lantern Bong, plain, large Herb Pizza box pizza boxes Pizza half-eaten Pizza slice Pizzas, several Pot - doobie, big glowing (2) Pot - shotgun Rolling papers			Special Effects 2 Billboard comes to life - Frenchie's 3 Billboard comes to life - Godmother's 4 Billboard comes to life - Pizza de Sade 11. Insert shot - Frenchie's billboard 13 Insert shot - Godmother's billboard 14. Insert shot - Pizza de Sade billboard 33. Pot smoke	
Set Dressing Alphabet cubes (3) Andrew Shirts (3) Bedding, children's twin-size (2) Billboard for Frenchie's Pizza Billboard for Godmother's Pizza Billboard for Pizza de Sade Bunk beds Cable spools (2) Ceiling fan Computer w/keyboard Exhaust system Gene's magic chair Hanging light fixture			Costumes Andrew T-shirt Shorts Outfit Gene Army Shirt Shorts Outfit Omar T-shirt Shorts Outfit	
			Sound 32 Voice-over - Andrew watching billboards 38 Voice-over - Omar watching billboards	
			Special Equipment 1 Fog Machine 4 Car camera mount 5 Water Truck 6 Generator 7 Kino car kit 10 Gnp Truck	

Figure 26. Advance Schedule Report.

One of the most useful reports is the One-Line Schedule, although the customized example shown here would more appropriately be called a Two-Line Schedule.

Pizza Wars The Movie One-Line Schedule <small>(script dated 30-Jul-01, schedule dated 18-Aug-01)</small>				Page 1 Mon, Jan 14, 2002 Jack Igloe, UPM
DAY #1 -- Tue, Jul 17, 2001				
INT. BEDROOM - BOYS' (Night) N4	Sheet 23	Scene 23-24		5/8
SJSU Hal Todd Theatre	5PM Call	Gene and Boys discuss the Pot		
END OF DAY 1 -- Total Pages 5/8				
DAY #2 -- Wed, Jul 18, 2001				
EXT. DELIVERY CAR BILLBOARDS (Night) N1	Sheet 5	Scene 5, 7, 9, 11		2 1/8
Coleman at Hobson St	6PM Call	Boys in car, smoking out, watching billboards		
INT. BEDROOM - BOYS' (Night) N4	Sheet 25	Scene 25		1
SJSU Hal Todd Theatre	11PM Call	Gene tells about wishes		
END OF DAY 2 -- Total Pages 3 1/8				
DAY #3 -- Thu, Jul 19, 2001				
INT. BEDROOM - BOYS' (Night) N7	Sheet 43	Scene 43		1 2/8
SJSU Hal Todd Theatre	2PM Call	Boys push Gene about the third wish		
EXT. DELIVERY CAR GENE ARRIVES (Night) N1	Sheet 14	Scene 14/15		4 2/8
SJSU 7th Street Plaza	7PM Call	Gene arrives, tells boys about wishes		
END OF DAY 3 -- Total Pages 5 4/8				
DAY #4 -- Fri, Jul 20, 2001				
INT. BEDROOM - MOM & POP's (Night) N5	Sheet 29	Scene 29		1 4/8
SJSU Hal Todd Theatre	6PM Call	Pop tells Mom his suspicions about Boys		
END OF DAY 4 -- Total Pages 1 4/8				
DAY #5 -- Sun, Jul 22, 2001				
EXT. TWO LANE ROAD (Day) D10	Sheet 59C	Scene 62		1/8
Almaden - McKean Rd	--> 5AM Call	Lead characters drive off into sunset		
EXT. DESERT (Dusk) D0	Sheet 1A	Scene 0A		2/8
Manna Dunes	12Noon Call	Bounty hunters bring in Gene		
END OF DAY 5 -- Total Pages 3/8				

Figure 27. One Line Schedule.

This version of a One-Line Schedule shows a considerable amount of information in very little space.²⁵ The customization added the script day, sheet number, shooting location, and call time.

The Scene Cast and Extras report is particularly useful to the Casting Director and 2nd AD to coordinate logistics.

²⁵ As a historical note, this example also records the fact that the first and last scenes of *Pizza Wars* were shot on the same day, the fifth of production.

Pizza Wars The Movie			Page 1
Scene Cast and Extras			Mon, Jan 14, 2002
(script dated 30-Jul-01, breakdown dated 18-Aug-01, schedule dated 18-Aug-01)			Jack Igoe, UPM
SHOOT DAY #1 - Tue, Jul 17, 2001			
Scene 23-24 Sheet 23	INT - BEDROOM - BOYS' - Night <i>Gene and Boys discuss the Pot</i>		5/8 Pgs N4
Cast Members			
1 SCOOTER			
3 CORNELIUS			
7 GENE			
37 SADDAM			
			END OF DAY #1 - 5/8 Total Pages
SHOOT DAY #2 - Wed, Jul 18, 2001			
Scene 5, 7, 9, 11 Sheet 5	EXT - DELIVERY CAR BILLBOARDS - Night <i>Boys in car, smoking out, watching billboards</i>		2 1/8 Pgs N1
Cast Members		Extras	Vehicles
1 SCOOTER		Dog wrangler Elliott	Driveby Vehicles (10)
3 CORNELIUS			Mopeds
37 SADDAM			Pizza Delivery Car
Notes			
Cast report to HGH for Makeup/Wardrobe then go to set			
Need transport for cast - HGH to Coleman			
Skeleton Crew			
Scene 25 Sheet 25	INT - BEDROOM - BOYS' - Night <i>Gene tells about wishes</i>		1 Pgs N4
Cast Members			
1 SCOOTER			
3 CORNELIUS			
7 GENE			
37 SADDAM			

Figure 28. Scene Cast and Extras Report.

The most compact report is the shooting summary.

Pizza Wars The Movie Shooting Summary <small>(script dated 30-Jul-01, schedule dated 18-Aug-01)</small>			Page 1 Mon, Jan 14, 2002 Jack Igoe, UPM
DAY #1 - Tue, Jul 17, 2001			
INT BEDROOM - BOYS' (Night) N4	Scene 23-24	Sht 23	Gene and Boys discuss the Pot
DAY #2 - Wed, Jul 18, 2001			
EXT DELIVERY CAR BILLBOARDS (Night) N1	Scene 5, 7, 9, 11	Sht 5	Boys in car, smoking out, watching billboards
INT BEDROOM - BOYS' (Night) N4	Scene 25	Sht 25	Gene tells about wishes
DAY #3 - Thu, Jul 19, 2001			
INT BEDROOM - BOYS' (Night) N7	Scene 43	Sht 43	Boys push Gene about the third wish
EXT DELIVERY CAR GENE ARRIVES (Night) N1	Scene 14/15	Sht 14	Gene arrives, tells boys about wishes
DAY #4 - Fri, Jul 20, 2001			
INT BEDROOM - MOM & POP's (Night) N5	Scene 29	Sht 29	Pop tells Mom his suspicions about Boys
DAY #5 - Sun, Jul 22, 2001			
EXT TWO LANE ROAD (Day) D10	Scene 62	Sht 59C	Lead characters drive off into sunset
EXT DESERT (Dusk) D0	Scene 0A	Sht 1A	Bounty hunters bring in Gene
DAY #6 - Mon, Jul 23, 2001			
INT GREENSCREEN () D10	Scene 60	Sht 60C	Brady Bunch opening credit squares
INT GODMOTHER'S PIZZA (Night) N1	Scene 8	Sht 8	Godmother's billboard comes to life
INT GODMOTHER'S PIZZA (Night) N6	Scene 37	Sht 37	Vincenzo and Joey argue about whacking

Figure 29. Shooting Summary.

5.5. CALL SHEETS

Call sheets are the daily tactical communication vehicles for the production schedule. They are copied double-sided, with the scene, cast, and extra information on the front and the crew and equipment information on the back. Call sheets indicate in considerable detail what resources are required, when, and where.

Scheduling call sheets are “totally useless” (Panelli-Venetis). The software cannot store/access enough of the right information to make them worthwhile. *Excel* is the dominant, if not almost exclusive, tool used to prepare call sheets. There is no common format, with each production company having its own requirements. “Everyone wants something different. Warner would never accept the one you used at Fox” (Panelli-Venetis).

The call sheet described in the following sections is for the 24th day of shooting *Pizza Wars*, scheduled for Wednesday, August 25th. The file was named 24-Call-010815-Wed.XLS, demonstrating the convention used for *Pizza Wars* and *Intentions*: [shoot day]-“Call”-[yymmdd]-[day of week].XLS.

Because a call sheet is so complex, it will be displayed and described here in sections. Full-page views are included in the appendix. While the following paragraphs provide commentary on some of the formulas used in the sheet, they do not provide detailed instruction on how to construct the entire spreadsheet. The level of automation provided by this spreadsheet can only be achieved by a very “*Excel*-literate” person.

The top of the front of call sheet shows the information about the production company, the shooting day's call time and crafts services status, the closest medical facility, the weather, and the breakdown sheets to be shot that day.

Producer: Nick Martinez Director: Babak Sarrafan Elvis Ain't Dead Productions TRFT Dept., One Washington Sq. San Jose, CA 95192-0098 T 1-408-924-5759 F 1-408-924-4583			Pizza Wars The Movie Wednesday, August 15 Crew Call 5:30 PM <small>No breakfast at call Beverages/snacks only</small>			Day: 24 of 30 Closest hospital San Jose Medical Center 13th & Santa Clara St. San Jose, CA 95112 1-408-977-4657		
Sunrise:			Sunset:			Weather:		
<small>THERE WILL BE NO FORCED CALLS WITHOUT PRIOR APPROVAL BY UPAL ALL CALLS SUBJECT TO CHANGE BY UPAL AND/OR ADS NO PERSONAL VIDEO OR STILL CAMERAS ALLOWED OR USED ON SET WITHOUT PRIOR PERMISSION NO NONWORKING MINORS ARE ALLOWED ON SET OR STAGES</small>								
Scene	Sheet	IE	Set Description	Cast	D/N	Pages	Location	
19	19	INT	MOM & POP'S DINING ROOM/KITCHEN Oregano has made Pizzena very busy	1, 2, 3, 4, 7, 10, 21, 22, 24, 25, 30, 32, 34, 35	N2	2 3/8	SJSU Hal Todd	
38	38	INT	MOM & POP'S DINING ROOM/KITCHEN Debbie discovers results of oregano	4, 5, 21, 22, 30, 32, 34, 35, 37	N6	7/8	SJSU Hal Todd	
CONTRACT AND DAY PLAYERS				CALL TIMES		3 2/8	Total pages this day	

Figure 30. Call Sheet Front – Call Time and Scenes

The numbers listed under “cast” are the board IDs from the *Scheduling* file. “D/N” shows the script day for the sequence. Note that this supercedes the “day/night” information at the end of the slug line. In this example, scene 19 occurs on the night of the second day of the story and scene 38 occurs on the night of the sixth day of the story. That the two scenes shot on the same day occur on different script days serves as an alert to the wardrobe, makeup, and continuity departments.

The large, merged cell containing the crew call time, 5:30PM in this case, is assigned a spreadsheet name “CrewCall” so it can be easily referenced in formulas for other cells.

The next section of the call sheet shows the details of cast member scheduling requirements: who is called, when, and where to report. In this particular scene, there are

many cast members and extras so each has an individual call time in order to efficiently move everyone the makeup and wardrobe.

The number in the left-hand column is the board ID as used in the scene description above, followed by the cast member name and associated character. Note that in this scene, two actors are each playing two characters.

CONTRACT AND DAY PLAYERS				CALL TIMES				3 2/8	Total pages this day
NO.	CAST	CHARACTER	SWF	REPORT	MAKEUP	WARDROBE	ON SET	REMARKS	
1	Andy Sims	SCOOTER	W	6 50 PM	7 15 PM	7 05 PM	7 30 PM	Jeanna	
2	Andy Sims	POP	W				7 30 PM	Who first?	
3	Omar Miller	CORNELIUS	W	6 50 PM	7 15 PM	7 05 PM	7 30 PM	Joy/Kim	
4	Omar Miller	MOM	PW				7 30 PM	Who first?	
5	Chansse Lonaux	DEBBIE	W	6 30 PM	6 45 PM	7 00 PM	7 30 PM	Self	
7	Elliot Peele	GENE	W	6 30 PM	6 45 PM	7 00 PM	7 30 PM	Jeanna	
10	Chns Murphy	MERRIL	W	6 30 PM	6 45 PM	7 00 PM	7 30 PM	Joy/Kim	
21	Jack Igoo	HIGHWAY PATROL	W	6 15 PM	7 00 PM	6 30 PM	7 30 PM	Joy/Kim	
22	Joyce Igoo	NUN	SW	6 15 PM	7 00 PM	6 30 PM	7 30 PM	Jeanna	
24	TBD	FRAT BOY	SWF					Babak will decide which extra has line	
25	TBD	SORORITY GIRL	SWF					Babak will decide which extra has line	
30	Eric Jung	ASIAN DOUGH DEA	W	7 00 PM	7 25 PM	7 15 PM	7 30 PM	Jeanna	
32	Matt McTighe	IRISH DOUGH DEAL	W	7 00 PM	7 25 PM	7 15 PM	7 30 PM	Joy/Kim	
34	Mano Ormonde	PORTUGUESE MAN	PW	6 55 PM	7 20 PM	7 10 PM	7 30 PM	Jeanna	
35	Renee Cunha	PORTUGUESE WOM	PW	6 55 PM	7 20 PM	7 10 PM	7 30 PM	Joy/Kim	
37	Happy	SADDAM	W				7 30 PM		
NO.	ATMOSPHERE AND STANDING			REPORT	MAKEUP	WARDROBE	ON SET	REMARKS	

Figure 31. Call Sheet Front – Cast

Entering the Board ID in the left-most column indicates that the cast member is called to work that day. This field is referenced by formulas in other cells that are left blank if the cast member is not called.

The SWF column indicates the cast member's work status using codes obtained from the "Day out of Days" report for Cast. This is provided as information to the cast and crew, but is not critical to the day's shooting. It allows "hellos" and "goodbyes" to be said as appropriate, as well as alerting the support staff to newly arriving or departing actors.

Call times are entered as formulas, with the ON SET time as a reference. In this example, spreadsheet row²⁶ 23 is the line for Andy Sims, Board ID number 1. The formula for cell²⁷ O23, the ON SET time for Andy is `=IF(ISNUMBER($A23),CrewCall+TIME(2,0,0),"")`. The formula means, “If the cast member is called, his/her ON SET time is two hours after the main crew call time. If not called, leave the ON SET call time blank.” The formula for cell M23, the cast member’s Wardrobe report time, is `=O23-TIME(0,45,0)`, meaning “report to Wardrobe 45 minutes before the ON SET time. The formula for cell L23, Makeup call time, is `=M23+TIME(0,15,0)`, meaning “report to makeup 15 minutes after Wardrobe.

Finally, the formula in cell K23, the initial call time for the actor, is `=IF(OR(ISNUMBER(L23),ISNUMBER(M23)),MIN(L23:M23)-TIME(0,15,0),"")`, meaning “if the actor has a makeup or wardrobe call, the ‘report to shoot’ time is 15 minutes before the earlier of the two. If not, the actor does not need to report and the ‘Report’ time is left blank.”

Similar formulas are used for each cast member, with only the row number changing. Entering call times as time-offset formulas takes longer for initial preparation but saves considerable time if the main call time changes – all other times are automatically recalculated.

²⁶ Row numbers are not visible since the printed version of the Call Sheet is shown.

²⁷ Cell coordinates are provided so the relationship between formulas can be seen. They have no significance in their own right.

The next section of the call sheet shows requirements and call times for extras and stand-ins, along with any special instructions or reminders.

NO.	ATMOSPHERE AND STANDINS	REPORT	MAKEUP	WARDROBE	ON SET	REMARKS
1	Andy double as SCOOTER	6 00 PM	n/a	6 15 PM	7 30 PM	When finished with makeup and wardrobe, please wait in Crafts Services area, HGH-114
1	Babak's Dad	7 15 PM	dust-off	self	7 30 PM	
2	Cops	6 00 PM	dust-off	6 15 PM	7 30 PM	
3	Dancers	7 15 PM	self	self	7 30 PM	
5	Frat boys	5 30 PM	dust-off	5 45 PM	7 30 PM	
1	Josh Page	7 10 PM	dust-off	7 25 PM	7 30 PM	
1	Omar double as CORNELIUS	6 00 PM	n/a	6 15 PM	7 30 PM	
3	Rappers	6 50 PM	dust-off	7 05 PM	7 30 PM	
7	Sorority girls	5 30 PM	dust-off	5 45 PM	7 30 PM	
24	TOTAL					
SPECIAL INSTRUCTIONS/REMINDERS						
BASE CAMP: HGH						
PROD. MTG: 5:00 PM HGH-114						
SPECIAL EQUIP: Boom box with hip-hop music						
ATMOSPHERE:						
OTHER NOTES:						
ADVANCE SCHEDULE						

Figure 32. Call Sheet Front - Extras and Special Instructions.

The formula-based approach to call times is also used in this section. The production meeting time, 5:00 PM in this case, is also a formula: $=CrewCall-TIME(0,30,0)$, meaning, "the meeting starts 30 minutes before the main crew call time."

The bottom of the call sheet front shows the scenes and cast required for the next shooting day and indicates when it will occur. It also contains a signature block. Call sheets are prepared by the 2nd AD and must be approved by the UPM and 1st AD before distribution.

ADVANCE SCHEDULE						
Scene	Sheet	IE	Set Description	Cast	D/N	Pages Location
22	22	INT	MOM & POP'S DINING ROOM/KITCHEN Debbie arrives at very busy Pizzeria	1, 2, 3, 4, 5, 7, 21, 22, 30, 32, 34, 35	N4	5 1/8 SJSU Hal Todd
					Total:	5 1/8
UPM: Jack Igoe, 408-832-7358			1st AD: Michael Flores, 408-388-7277		2nd AD: Michaela Starr, 408-806-8307	
1/14/02 10:30 AM						

Figure 33. Call Sheet Front - Advance Schedule and Signatures

The back of the Call Sheet is sometimes called Production Requirements.

[illegible]

Figure 34. Call Sheet Back – Production Requirements - Top.

Appropriate job functions are listed under each department. The “Number” column is used to indicate the quantity of a particular job function required that day.

Except in an extraordinarily large crew, an approach similar to that used on *Pizza Wars* may be used: A name is assigned to each job function and the number entered is always “1” or left blank. If more than one person is performing a job function, a line is created for each person. See “Art PA” in the example above.

If the “number” field is left blank, that person is not required on that particular day and the formulas in the “Call” and “Report to” cells make them blank. If a job function is called but there is no name assigned, the formulas cause both the “Call” and “Report to” cells to display “NEED,” indicating a crew member must be found to fulfill this role.

1	Sound Recordist	Ben Herth	6:00 PM	HGH
1	Boom Operator	Nate Costa	6:00 PM	HGH
	Sound Assistant	Colin Stener		
1	Costume Designer	Sarah Loughheed	5:00 PM	HGH
1	Costume Asst	Laura Gangi	per SL	per SL
1	Costume Asst	Peter Hayes	per SL	per SL
1	Key Make-up/Hair	Jeanna Hurd	5:00 PM	HGH
1	Asst. Make-up/Hair	Kim Melhoff	per JH	per JH
	Make-up	Joy Bernstein		

Production van	
Camera truck	
Gnp/Electric truck	Nick
Propetry/Wardrobe truck	
Craft Services Truck	
Craft shuttle van	
Water Truck	Kim
Generator	Matt Riley
26	Total Crew

PRODUCTION NOTES

Figure 36. Call Sheet Back - Production Requirements, bottom.

Call Sheets for smaller productions can fit on 8-1/2 x 11 inch letter-size paper.

For larger productions, the 8-1/2 x 14 legal size is used. For very large productions, even this is sometimes a challenge, but the print is reduced so that in every case, the call sheet is a single sheet of paper.

Call sheets are distributed full size to the crew. For cast members, half-sized copies are created and stapled to the front of their “sides,”²⁸ giving each actor a complete package for the next day’s shooting. Extra copies should be printed and available on the day of shooting because actors seem to have a habit of losing their sides.

²⁸ A reduced-size copy of the script pages for only the scenes to be shot on a given day.

6. CONCLUSIONS AND FOLLOW-ON

The foundation of the tool set described here is *Movie Magic Scheduling*. As sophisticated as it is, there is much room for improvement. The following list of changes has been communicated to Creative Planet,²⁹ with a request for their inclusion in a future release:

- “Schedule Dated” and “Breakdown Dated” should be added to Picture Info in addition to “Script Dated,” freeing Misc. #1 and Misc. #2 for other uses.
- Fields for “Crew call,” “Cast call,” and “First shot” times should be added to the breakdown sheet header, freeing “Sequence” for its intended use.
- Fields for “number of setups,” “number of shots,” and “estimated production time” should be added to the breakdown sheet header. The values should be totaled on the Day Break banner in the same way as “Script Pages” is currently handled.
- “Design Reports” should add the ability to nudge the size of a field box similar to the way the arrow keys nudge the box’s position, perhaps using ctl-arrows or alt-arrows.
- “Design Reports” should include the ability to “group” fields on a report design so they can be moved or copied together without having to resort to “multiple selection” each time.
- A new report should be added to provide a production calendar view of the schedule.
- The program should include, at a minimum, the ability to associate Sets with Locations and not require entry on every breakdown sheet.

Discussions are continuing with Bob Koster on *Scheduling* techniques and requirements, as well on other computer-based tools for film production management.

²⁹ In February 2002 the company changed its name to Movie Magic Technologies.

Even with these and Koster's requested changes, neither *Scheduling* nor any other tool will be a panacea. As in all disciplines, the effectiveness of computer-based tools for film production management depends on both the computer literacy of the users and their understanding of the processes to which the tools are applied.

Work on *Intentions* reinforced the fact that use of computer-based tools is neither intuitively obvious nor quick to learn. "Although many of these software programs make the production manager's job easier, they cannot replace the PM's knowledge and scheduling experience" (Cleve, 49).

As a result of the work done on this research, San Jose State University is in the process of acquiring multiple copies of *Screenwriter*, *Scheduling*, and *Budgeting* so these tools and techniques can be taught at the undergraduate level. Special topics courses in film production are being offered so students can apply these techniques on real productions. "There is no better method to learn how to schedule and budget a feature film than by actually doing it" (Singleton, 4).

"There's an old expression that a film gets written three times: once when you're writing it, once when you're making it, and the final time in the editing room" (Helgeland). The techniques described in this thesis enable a computer-proficient AD/UPM to efficiently turn the "first writing" into the second. The measure of success is that the director gets the desired shots, on schedule, and within budget.

APPENDIX. FULL-PAGE FORMS AND SAMPLES

A.1. Breakdown Sheet.

Scene # 19 Starting Script Page 18 Page Count 2 3/8 Jack Igoe, UPM		Pizza Wars The Movie Breakdown Sheet <small>(script dated 30-Jul-01, breakdown dated 18-Aug-01)</small>		Bkdown Sht # 19 In/Ext INT Day/Night Night Sript Day N2	
Scene Description: Oregano make pizzeria very busy					
Setting: MOM & POP'S P. DR/KIT					
Location: SJSU Hal Todd Theatre					
Cast Members 1 SCOOTER 2 POP 3 CORNELIUS 4 MOM 7 GENE 10 MERRIL 21 HIGHWAY PATROLMAN 22 NUN 24 FRAT BOY 25 SORORITY GIRL 30 ASIAN DOUGH DEALER 32 IRISH DOUGH DEALER 34 PORTUGUESE MAN 35 PORTUGUESE WOMAN 37 SADDAM		Set Dressing Chairs at Mom & Pop's (16) Tables at Mom & Pop's (4)		Props Merrill's Palm Pilot Pizza - Bacon & Egg, sliced Pizza slice	
Sound 5 Clock ticks 10 Front door bell tinkles		Costumes Andrew T-shirt Shorts Outfit Asian Dough Dealer outfit Frat boy outfit Gene Army Shirt Shorts Outfit Highway patrolman mirrored shades Highway Patrolman outfit Irish Dough Dealer outfit Merrill's regular outfit Mom's apron Mom's regular outfit Nun outfit Omar T-shirt Shorts Outfit Pop's regular outfit Portuguese Man outfit Portuguese Woman outfit Sorority girl outfit		Extras Andy double as SCOOTER Cops (2) Frat boys (5) Omar double as CORNELIUS Sorority girls (7)	

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Date Printed 1/14/2002

Sheet Number: 23		5	25	43	14	29	59C	1A	60C	8	37		
Page Count 5/8		2 1/8	1	12/8	4 2/8	1 4/8	1/8	2/8	1/8	5/8	1 6/8		
Shoot Day		1	2	3	3	4	5	5	6	6	6		
Pizza Wars The Movie Director Babak Sarrafan Producer Nick Martinez Asst Director M. Flores, J. Igoe Script Dated 30-Jul-01 Sched Dated 18-Aug-01													
Character		No.	INT - BEDROOM - BOYS - Night Scs 23-24 5PM Call	EXT - DELIVERY CAR BILLBOARDS - Night Scs 5, 7, 9, 11 6PM Call	INT - BEDROOM - BOYS - Night Scs 25 11PM Call	INT - BEDROOM - BOYS - Night Scs 43 2PM Call	EXT - DELIVERY CAR GENE ARRIVES - Scs 14/15 7PM Call	INT - BEDROOM - MOM & POP's - Night Scs 29 6PM Call	EXT - TWO LANE ROAD - Day Scs 62 --> 5AM Call	EXT - DESERT - Dusk Scs 0A 12Noon Call	INT - GREENSCREEN - Scs 60 Before Scene	INT - GODMOTHER'S PIZZA - Night Scs 8 6PM Call	INT - GODMOTHER'S PIZZA - Night Scs 37 6PM Call
SCOOTER	1	1											
POP	2												
CORNELIUS	3	3											
MOM	4												
DEBBIE	5												
PHOTOGRAPHER	6												
GENE	7	7			7	7	7						
VINCENZO	8												
MERRIL	10												
JOEY	11												
SULTAN OF OZBUCA	12												
SOPHIA	13												
PIERRE	14												
ORAN	15												
SUZY	16												
WENDY	17												
DOMINIQUE	18												
CHESTER	19												
VERONICA	20	HIGHWAY P											
NUN	22	GRASSHOP											
FRAT BOY	24	SORORITY											
ASIAN DOU	30	ASIAN BAN											
IRISH DOU	32	IRISH BANDIT											
PORTUGUE	34	PORTUGUE											
EXOTIC BEL	36	SADDAM											
Extras		37											
Prepared by Jack Igoe, UPM		N4	-- End Of Day 1-- 7/17/2001-- 5/8 pgs. -- End Of Day 2-- 7/18/2001-- 3 1/8 pgs. -- End Of Day 3-- 7/19/2001-- 5 4/8 pgs. -- End Of Day 4-- 7/20/2001-- 1 4/8 pgs. -- End Of Day 5-- 7/22/2001-- 3/8 pgs.										
Gene and Boys discuss the Pot		Tue Jul 17, 2001											
Boys in car, smoking out, watching billboards		Wed Jul 18, 2001	N1										
Gene tells about wishes		Wed Jul 18, 2001	N4										
Boys push Gene about the third wish		Thu Jul 19, 2001	N7										
Gene arrives, tells boys about wishes		Thu Jul 19, 2001	N1										
Pop tells Mom his suspicions about Boys		Fri Jul 20, 2001	N5										
Lead characters drive off into sunset		Sun Jul 22, 2001	D10										
Bounty hunters bring in Gene		Sun Jul 22, 2001	D0										
Brady Bunch opening credit squares		Mon Jul 23, 2001	D10										
Godmother's billboard comes to life		Mon Jul 23, 2001	N1										
Vincenzo and Joey argue about whacking		Mon Jul 23, 2001	N6										

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A.3. Call Sheet Front.

Producer: Nick Martinez Director: Babak Sarrafan Elvis Ain't Dead Productions TRFT Dept., One Washington Sq. San Jose, CA 95102-0088 T 1-408-924-5759 F 1-408-924-4583		Pizza Wars The Movie Wednesday, August 15 Crew Call 5:30 PM No breakfast at call. Beverages/snacks only		Day: 24 of 30 Closest hospital San Jose Medical Center 13th & Santa Clara St. San Jose, CA 95112 1-408-977-4657				
Sunrise: _____ Sunset: _____ Weather: _____ H: _____ L: _____ THERE WILL BE NO FORCED CALLS WITHOUT PRIOR APPROVAL BY UPM. ALL CALLS SUBJECT TO CHANGE BY UPM AND/OR ADS. NO PERSONAL VIDEO OR STILL CAMERAS ALLOWED OR USED ON SET WITHOUT PRIOR PERMISSION. NO NON-WORKING MINORS ARE ALLOWED ON SET OR STAGES.								
Scene	Sheet	IE	Set Description	Cost	D/N	Pages	Location	
19	19	INT	MOM & POPS DINING ROOM/KITCHEN	1, 2, 3, 4, 7, 10, 21, 22,	N2	2 3/8	SJSU Hal Todd	
			Oregano has made Pizzena very busy	24, 25, 30, 32, 34, 35				
38	38	INT	MOM & POPS DINING ROOM/KITCHEN	4, 5, 21, 22, 30, 32, 34, 35, 37	N6	7/8	SJSU Hal Todd	
			Debbie discovers results of oregano					
CONTRACT AND DAY PLAYERS						3 2/8	Total pages this day	
NO.	CAST	CHARACTER	SWF	REPORT	MAKEUP	WARDROBE	ON SET	REMARKS
1	Andy Srms	SCOOTER	W	6:50 PM	7:15 PM	7:05 PM	7:30 PM	Jeanna
2	Andy Srms	POP	W				7:30 PM	Who first?
3	Omar Miller	CORNELIUS	W	6:50 PM	7:15 PM	7:05 PM	7:30 PM	Joy/Kim
4	Omar Miller	MOM	PW				7:30 PM	Who first?
5	Chansse Loraux	DEBBIE	W	6:30 PM	6:45 PM	7:00 PM	7:30 PM	Self
7	Elidit Peele	GENE	W	6:30 PM	6:45 PM	7:00 PM	7:30 PM	Jeanna
10	Chns Murphy	MERRIL	W	6:30 PM	6:45 PM	7:00 PM	7:30 PM	Joy/Kim
21	Jack Igoo	HIGHWAY PATROL	W	6:15 PM	7:00 PM	6:30 PM	7:30 PM	Joy/Kim
22	Joyce Igoo	NUN	SW	6:15 PM	7:00 PM	6:30 PM	7:30 PM	Jeanna
24	TBD	FRAT BOY	SWF					Babak will decide which extra has line
25	TBD	SORORITY GIRL	SWF					Babak will decide which extra has line
30	Enc Jung	ASIAN DOUGH DEB	W	7:00 PM	7:25 PM	7:15 PM	7:30 PM	Jeanna
32	Matt McTighe	IRISH DOUGH DEAL	W	7:00 PM	7:25 PM	7:15 PM	7:30 PM	Joy/Kim
34	Mano Ormonde	PORTUGUESE MAN	PW	6:55 PM	7:20 PM	7:10 PM	7:30 PM	Jeanna
35	Renee Cunha	PORTUGUESE WOM	PW	6:55 PM	7:20 PM	7:10 PM	7:30 PM	Joy/Kim
37	Happy	SADDAM	W				7:30 PM	
NO.	ATMOSPHERE AND STANDINS			REPORT	MAKEUP	WARDROBE	ON SET	REMARKS
1	Andy double as SCOOTER			6:00 PM	n/a	6:15 PM	7:30 PM	
1	Babak's Dad			7:15 PM	dust-off	self	7:30 PM	
2	Cops			6:00 PM	dust-off	6:15 PM	7:30 PM	
3	Dancers			7:15 PM	self	self	7:30 PM	
5	Frat boys			5:30 PM	dust-off	5:45 PM	7:30 PM	
1	Josh Paige			7:10 PM	dust-off	7:25 PM	7:30 PM	
1	Omar double as CORNELIUS			6:00 PM	n/a	6:15 PM	7:30 PM	
3	Rappers			6:50 PM	dust-off	7:05 PM	7:30 PM	
7	Sorority girls			5:30 PM	dust-off	5:45 PM	7:30 PM	
24	TOTAL							
SPECIAL INSTRUCTIONS/REMARKS								
BASE CAMP: HGH PROD. MTG: 5:00 PM HGH-114 SPECIAL EQUIP: Boom box with hip-hop music ATMOSPHERE: OTHER NOTES:								
ADVANCE SCHEDULE								
DATE: Thursday, August 16				DAY 25	OF 30	CREW CALL: 5:00 PM		
Scene	Sheet	IE	Set Description	Cost	D/N	Pages	Location	
22	22	INT	MOM & POPS DINING ROOM/KITCHEN	1, 2, 3, 4, 5, 7,	N4	5 1/8	SJSU Hal Todd	
			Debbie arrives at very busy Pizzena	21, 22, 30, 32, 34, 35				
Total:						5 1/8		
UPM: Jack Igoo, 408-832-7358			1st AD: Michael Flores, 408-388-7277			2nd AD: Michaela Starr, 408-806-8307		
1/14/02 10:30 AM								

[illegible]

A.5. Scheduling Notes from *Intentions*.

Initial/General

NOTE: I could correct some of the things in the files; others can only be resolved after discussion with Luane.

After I made the list, I went back and checked off the items that I completed and added comments where necessary. A number of issues were solved by the changes Sarah brought from her Monday afternoon meeting with Christian. Items fixed already fixed in files are identified with a check mark.

- ✓ Created copies of original documents, suffixed JWI. In MMS, viewing Production Board, used menu "Schedule" "Board Swap" to save Christian's original strip sequence if I wanted to get back to it. (I'll be sorting the strips in different orders during the analysis process.)
- ✓ Script dated, and Misc #1 and #2 not filled in with dates. These are necessary so you know on what information the reports are based.
- ✓ Superfluous and duplicate reports. Deleted and renamed to clean up. Can always get back others if needed. Call me if necessary.

Using "List of Scenes-Sheets Used" found lots of Extras listed as cast members, i.e., CAST, EVERYONE, MALE ACTOR, AUDIENCE, TWO ACTORS. Move extras to to the category Extras and rename so extras can be cast, and put how many you need in parens, e.g. CAST FEMALE (4) and CAST MALE (2). Resolve with Luane exactly how many she wants in each category. Then, "Extras by Day" report will accurately reflect requirements so casting can do their job.

I couldn't sort this out. I suspect MALE ACTOR is part of CAST. The element CAST had two names in it. EVERYONE is probably the same as CAST. See Luane for clarification. Sarah understands how we need to break this out

Synopses are a bit long. Production Board much easier to read if they are short enough to fit on one line, plus the actual shooting day will then show on the strip.

The wrong strip layout was loaded. Now the synopsis truncate and the date still shows. Shorter synopsis would probably still be better so a complete thought shows on the strips and reports.

- ✓ Printed Category List report for Special Equipment to find which scenes had been tagged with Steadicam since scheduling problems were anticipated.

Changes entered by Sarah after your meeting moved all the steadycam shots to the last three days of the shoot.

(in the "side by side" comparison, I did not check to make sure each prop, set dressing, etc., was in the breakdown. That should be resolved by the production designers looking scene by scene at the breakdown sheets and identifying what they want in each scene.)

SCENE-BY-SCENE - JWI NOTES

3

- ✓ CHELSEY missing as Livestock.

- ✓ Scheduled on same day as Rene's house scenes. Watch out for company moves. They'll typically cost you half a day, even if local.

Addressed by Sarah's changes. I would consider swapping what are now days 1 and 2.

4

"They make love." Easy to write, more difficult to shoot. This is the first of several scenes where Luane will have to decide how elaborate she wants to be. These scenes tend to take longer than expected if they are to be done well. Easy to write, much tougher to shoot. She'll also have to decide about how much nudity, closed set, etc. This will be particularly true when the two women "make passionate love."

5

Action say "walk to Eve's apartment." Need to think about how this will be shot. Does conversation take place entirely in front of the theatre and/or walking away from it or is Eve's apartment EXT actually involved? If so, need additional breakdown or locations of theatre and apartment where this can be shot as one location.

This walking conversation could take place almost anywhere, removing the tie to the Regency Theatre and creating scheduling flexibility.

Scheduled on same day as "Theatre Seattle Washington." is this a company move?

If so, it might be tough to shoot four pages. Just a cautionary note.

6

"They make passionate love." See note on Scene 4.

- ✓ Scheduled on same day as three other INT preceded by and EXT, totaling over 7 pages. Probably a big problem to get done in one day

8

Scheduled on the same day as five other scenes. Don't be misled that most are short. They all require setups, probably multiple, therefore more time consuming than you might suspect.

Still an exposure here. Plan shooting carefully and realistically. This is scheduled near the end of the shoot and there are no open days left on which to recover.

12-15

- ✓ See previous comment on Scene 8. Scene 15 had a piece of dialogue tagged as action. Conversion problem from Final Draft.

16

- ✓ Scheduled on a day with a company move, but both scenes are short so should probably be okay.

17

- ✓ Slugged as EXT EVE'S APARTMENT, but takes place entirely in car. Need car mount? Need to think thorough how this will actually be shot. See concerns noted on Scene 6 about the problems with this day.

We changed scenes 17 and 37 to a new set name since they take place entirely inside Renee's car. They're currently scheduled on different days, but this removes the physical tie to Eve's apartment

18

"They make passionate love" again. See comment on Scene 4 and 6.

20

Scheduled on a day with an EXT and another INT totaling 6 pages. Could be a problem.

Can you move scene 37 from day 15 to first thing on day 12 ahead of scene 17?

21

See previous comments about problems with this day. (Scenes 8, 12-15.)

22

- ✓ Sheet 22a is actually at ERIN'S APARTMENT, not EVE'S like the slug line says. Even though the sheet becomes 22a (though I tend to use capital letter suffixes, for no obvious reason), the Scene Number should stay at 22. Scene number 22A would only be used if a new scene were created following 22 after the script was locked.

23

- ✓ This is really a rehearsal, so the AUDIENCE is not necessary.

24

- ✓ This is the show, so the AUDIENCE is necessary.

25

EVERYONE is the same as CAST, not separate extras. But what about other bar patron extra requirements?

26

This could be the toughest of the love scenes" "slowly, tenderly, passionately." The BAR scene should be scheduled on a separate day. This one will take a long time to shoot if it's to be done as written, with a lot a pre-planning.

28

- ✓ Right call to schedule this on its own day.

31

- ✓ Also had a conversion problem with a piece of dialogue showing up as Action.

33

- ✓ Vehicle is listed as "car." Also in 17. It would be good practice to list this a "Car – Renee's" since there might be other "cars." Probably not a problem with Intentions, but we ran into it in Pizza Wars.

34

- ✓ Same issue as Scene 22. Sheet 34b is GEOFF'S OFFICE, not RENEE's, and the scene is still 34.

35

- ✓ Same issues, now on three sheets.
- ✓ You correctly reduced the page count on 35a and 35b.
- ✓ Sheet 35, the main scene, should probably be shot on its own day.

36

Scheduled on day 15, totaling 7 pages, probably an issue.

This will be a long day (now day 11) but it will shoot out Dr. Hawkins office in one day.

37

- ✓ Another Renee's car scene. Scheduling will probably be easier if the aren't actually tied to EVE'S APARTMENT set.

40

There is no bartender anywhere in this scene, let alone a gay bartender. What about other bar patron extras?

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